



**39th Annual**  
**Trenton Computer Festival**  
The Oldest Personal Computer Show in the World  
The College of New Jersey  
Ewing, New Jersey

## 2014 PROGRAM BOOK

### Education Building

**Talks, Forums, Vendor Fair & Flea Market**  
**Saturday, March 15 - 9:00 am to 5:00 pm**  
Talks/Forums start at 10:15 am  
Sarnoff Museum Tours - 9:00 am to 3:00 pm

### <<<<< TCF Banquet 6:00pm >>>>>

**Speaker: Joseph Salvo, GE Global Research**  
**"The Industrial Internet Meets Cloud Manufacturing"**  
**1855 Room, Eickhoff Hall**  
**\$25 - Purchase tickets at Speaker Registration Table**

**Sponsored by: The College of New Jersey (TCNJ) School of Engineering** – [www.tcnj.edu/~engsci/](http://www.tcnj.edu/~engsci/)  
With the support of

IEEE Princeton / Central Jersey Section – [ewh.ieee.org/r1/princeton-centraljersey](http://ewh.ieee.org/r1/princeton-centraljersey)  
ACM/IEEE-CS – Joint Princeton / Chapters of ACM and IEEE Computer Society – [princetonacm.acm.org](http://princetonacm.acm.org)  
NYACC – New York Amateur Computer Club – [www.nyacc.org](http://www.nyacc.org)  
ACGNJ - Amateur Computer Group of New Jersey - [www.acgnj.org](http://www.acgnj.org)

### TCF Steering Committee

**Allen Katz** – TCNJ – Chair/Program Chair & Co-Founder TCF  
**Orlando Hernandez** – TCNJ – Treasurer & Webmaster  
**Susan Donohue** – UVa – ISEC Chair  
**Roger Amidon** – TCF Website support  
**Gene Freda** – CCCNJ – Information  
**Jacob Freedman** - Facebook Publicity  
**Eric Hafler** – PACS – Publicity Chair  
**Joe Jesson** – TCNJ – Speaker Program  
**Hank Kee** – NYACC – Keynote Speaker Chair  
**Lennie Libes** – ACGNJ – Speaker Program & Program Book

**Sol Libes** – ACGNJ – Program Book Editor & Co-Founder TCF  
**Michelle London** – Mt. Airy VHF R.C. (Pack Rats) – Flea Market  
**Tim Nugent** – TCNJ – IEEE Student Branch Chair  
**John Raff** – ACGNJ – Website Support  
**Michael Redlich** -- ACGNJ -- Secretary, Twitter Publicity & Volunteers  
**David Mc Ritchie** – ACGNJ -- Volunteers  
**David Soll** – IEEE/ACM – IT Professional Conference Chair  
**Annette Taylor** – IEEE/ACM – IT Professional Conference  
**Lenny Winfield** – Mt. Airy VHF R.C. (Pack Rats) – Flea Market

### Special Exhibits & Demos

**ED Building - First and Second Floor Lobbies**  
**Book signings/Demos: Google Glass, Quadcopter,**  
**Robotics/Technology/Vintage Computers**  
**3D Printer (in ED 200), Sarnoff Museum**  
**Digital Photos & Club Exhibits**

WiFi SSID: Guest-at-TCNJ3, login: guest747, password: gu2avana

### TCF Keynote Speaker

Joseph Salvo  
Manager, Complex Systems Engineering Lab  
GE Global Research  
***The Internet of Things (IoT)***  
Locate, control, and communicate with objects anywhere in the world. A technology breakthrough that will change the world.  
Room ED-115

**Twitter hashtags for TCF: #tcf and #tcf2014**

### Get a Ham Radio License in One Day!

*Sponsored by the David Sarnoff Radio Club <[www.n2re.org](http://www.n2re.org)>*

If you wanted to get an amateur radio license but never had the time, now is your opportunity! The FCC has changed the rules so that no Morse Code proficiency is required. To obtain the entry-level Technician license, all one has to do is pass a multiple-choice exam. With a Technician Class License, one may participate in Amateur Radio and enjoy privileges for operation on the HF amateur bands, use of VHF&UHF repeaters, participation in local Amateur Radio Emergency Services (ARES), the annual American Radio Relay League (ARRL) Field Day, and many other activities. We will be holding a three-session **"HAMCRAM 101" in ED-204** from 9:00 am to 12:30 pm, and a practice exam at 1:30 pm. The course will provide participants with an overview of the requirements needed to pass the FCC Technician License exam. At 3:30 pm the FCC examination will be given by ARRL-certified Volunteer Examiners (VEs). One does not have to attend the HAM CRAM 101 or pay for admission to TCF to attend the exam session. An exam fee (\$15.00) must be paid by each examinee. Two forms of identification (at least one must have your photograph) will be required to take the exam. All license exams will be offered (Technician, General and Extra) at this testing session. If upgrading, bring an original and a photocopy of your current license. Results of your test will be provided after the exam session is completed. The slides and material for the ham cram can be found at: <https://drive.google.com/folderview?id=0B8LbPwo1XLI3YTBdZiFmTTNBQzA&usp=sharing>. A truly wonderful and free study guide can be found at <http://www.kb6nu.com/tech-manual/>. Online practice exams are also of great benefit, <http://qrz.com/hamtest/>.

\*\*\*\*\* 10:15 am to 11:10 am \*\*\*\*\*

**Room ED-115: Bitcoin - Digital Currency for the Future or the Past?, Don Libes, NIST**

**Abstract:** Is crypto-currency the future? Or just another bubble waiting to pop? Learn about Bitcoins - the implementation, the potential, and the risks.

**Bio:** Don Libes is a computer scientist at the National Institute of Standards & Technology, where he does research on Smart Manufacturing. He has written three books: *Exploring Expect*, *Obfuscated C and Other Mysteries*, and *Life with Unix*.

**Room ED-211: You're Not in Kansas Anymore – The Strange Physical Layer World of Industrial Ethernet, Mike Nager, Metz Connect**

**Abstract:** When IT ventures into the unknown realms of the manufacturing plant floor, the process facility or the water treatment facility, things start to look strange. Yes, some of the terms like "Ethernet" seem familiar, but the physical layer looks like it came from another world, light-years from the office environment. Learn how the industrial plant implements Ethernet networks, from connectors to environmental ratings.

**Bio:** Mike Nager graduated with a degree in Electronics Engineering from the University of Scranton and has been involved with applications, sales and marketing of industrial controls and components since 1988. He has held leadership positions in ISA and MHIA and presented papers at IEEE, ISA, MHIA, WEFTECH, Smart Grid Electronics Forum, and IPC APEX. He has published articles in Control Design, Control Engineering, Machine Design, Industrial Computing, Plant Engineering and others. He is currently the Vice President for Metz Connect's North American operation.

**Room ED-209: Supporting Manufacturing Computer Systems, Charles Ahiwe**

**Abstract:** Unlike conventional IT environments where the first tier response is the traditional helpdesk mindset, redefining the functions and relevance of IS within regulated manufacturing environments from the IT perspective, and at the same time keep professionals challenged enough without the usual freedom of experimentation makes technical support centers unique watchdogs in operational support for Manufacturing Computer Systems.

**Bio:** Charles Ahiwe obtained a BS in Electrical and Electronic engineering from University of Ibadan, Nigeria in 2001 and a Master's degree in Information Science Technology in 2011 from Clark University. He spent several years working in Nigeria in different capacities in the IT industry. Currently, he is working in Genzyme as an IT technician.

**Room ED-208: TCNJ Robotic Assisted Hand, Miguel F. Colon, TCNJ**

**Abstract:** In the United States, over 1 million Americans suffer from muscular disorders such as multiple sclerosis, carpal tunnel syndrome and Parkinson's disease. Muscular disorders can cause muscles to lose strength and dexterity resulting in a loss of the ability to perform everyday movements. A power assistive exoskeleton has been designed to amplify a user's residual strength and restore functional movements. This device incorporates a digit mechanism to provide flexion/extension using a solenoid pneumatic actuator and a double action pneumatic cylinder. The double action pneumatic cylinders are connected to a polymer-braided cable that produces the force on each digit. The actuators are powered through a control system that receives sensor feedback from force sensing resistors placed on each finger. Testing will include the utilization of forearm EMG data obtained when the user performs tasks such as picking up a pencil, a 5 lb bag, and a water bottle, to evaluate the restoration of hand functionality.

**Bios:** Miguel Colon is a senior computer engineering major at TCNJ. His project efforts have focused on working out the circuit and the microcontroller algorithms needed for system control. Aside from the project, Miguel is currently Vice President of the TCNJ chapter of Union Latina, for which he has also served as Community Service Chair. He has also been Treasurer for the Society of Hispanic Professional Engineers (SHPE) at TCNJ. Miguel has been highly involved in the Educational Opportunity Fund where he was a program advisor, and in the Bonner program where he volunteered for many community service efforts, such as tutoring elementary, middle and high school kids; working at the Trenton Soup Kitchen; and performing beach cleanup. During his free time, Miguel likes to dance (he is captain of the salsa team at TCNJ), working out, listening to music, and playing football.

**Room ED-207: Introduction to RTL-SDR Dongles for VHF/UHF Radio Reception, Mario Filippi (N2HUN), ARRL**

**Abstract:** Inexpensive SDR (Software Defined Radio) dongles, based on Realtek's RTL chipset, have hit the VHF/UHF listening scene allowing radio hobbyists to receive CB, FM radio, aeronautical, ham, railroad, maritime, police, fire, EMS, NOAA, business band, FRS, GMRS and other utility

stations. These "dongles" are about the size of a thumb drive and cost less than twenty dollars. They attach to your PC via a USB port. Coupled with free online software, they allow one to travel the airwaves from 25 to 1000 MHz with ease. The software contains a mind-boggling array of options, such as bandwidth adjustments, infinite memory storage, 2 MHz wide real-time spectral scans, and modes such as AM/FM/CW/SSB. This presentation will be an introduction on how to set up an RTL-SDR along with actual screen shots of VHF/UHF intercepts. Those individuals who enjoy ham radio, scanning, shortwave reception or who just like to tinker will find this talk highly informative and inspiring.

**Bio:** Mario Filippi is a long time radio amateur (N2HUN) and avid shortwave, longwave, VHF/UHF, and satellite listener. He holds a B.S. degree from St. John's University and has written articles for Monitoring Times Magazine and presented talks on Free To Air Satellite reception.

**Room ED-206: Getting Started with PCs/Pads Including the Internet, and Digital Photography, Herman Hinitz, H. Hinitz Photography**

**Abstract:** This session is designed for the beginner, people who would like to use a personal computer/pads for word processing, electronic spreadsheets, graphics, Internet, databases, antivirus programs, firewall programs, digital photography, etc., but are unsure of how or where to begin. Appropriate examples would be used with applications such as MS Office. Also see a digital photography display in the building lobby area for related information and examples.

**Bio:** Herman Hinitz has used diversified software and hardware in research, consulting, publications, and digital photography. Some of his work has been included in commercially available books, professional publications, fine art collections, and gift shops. He is a long time supporter of TCF.

**Room ED-113: GPS Secrets Updated, Cass Lewart, Freelance Writer**

**Abstract:** This is an update of my popular talk about the technical aspects of the GPS. There is more to a GPS than a pleasant voice telling you to turn right on Cedar Street, and a color display of adjacent ramps and intersections. I will talk about the technical implementation of the current GPS system, and how the user location is derived from precise clocks on satellites. I will also explain how to capture, send and analyze NMEA data streams exchanged between your computer and GPS. The remainder of my talk will cover privacy issues, GPS spoofing, geocaching, and "secret" key codes required to manipulate GPS base maps.

**Bio:** Cass Lewart is an electrical engineer, a long time hobbyist/hacker, author of many books and articles on database programming, hobby electronic projects and data communication. Cass and Ruth are joint recipients of the 2005 Hobbyist of the Year award from ACGNJ, the oldest US computer club. Cass is a graduate of the Swiss Federal Institute of Technology and worked at Bell Labs and Unisys.

**Room ED-109: Workshop on Android App Development, Barry Burd, Drew University**

**Abstract:** Explore the Android app development process from beginning to end. Learn the basic steps for coding an app, preparing an app for publication on the Android market, and deploying the app on the market.

**Bio:** Barry Burd is a professor of Mathematics and Computer Science at Drew University in Madison, NJ. He is the author of several articles and books, including *Java For Dummies*, *Android Application Development All-in-One For Dummies*, and *Java Programming for Android Developers For Dummies*, (Wiley Publishing.) He received an M.S. degree in Computer Science from Rutgers University and a Ph.D. in Mathematics from the University of Illinois.

**Room ED-107: Arduino Developers Workshop, Bill French, FUBAR Labs**

**Abstract:** A day long Arduino tutorial and users meeting. We will start out with an introduction to the Arduino, this will be followed by a beginners Arduino hands on class. We then will have an introduction to creating your own Arduino compatible circuit boards, and an introduction to connecting your Arduino to the network.

**Bios:** Bill French is the President for FUBAR Labs. Besides hacking, Bill's interests include silk screening, electronics, Arduino, Netduino, CNC Controls, and circuit board creation. He has an A.S. in Computer Science and is the Director of Telecommunications, Network, and Support Services for the Princeton Theological Seminary.

**Room ED-110: OOP University - Introduction to Object-Oriented Programming and Design Principles, Michael Redlich, ACGNJ**

**Abstract:** Object-Oriented Programming (OOP) is a programming paradigm that models real-world objects. The most well-known and widely-used OOP

languages are C++ and Java, but some languages, such as Simula-67, were around much earlier. The advantages of OOP over structured programming include modularity and code re-use. As OOP has evolved over the years, things like design patterns and design principles have guided developers to write applications that are more adaptable to modification. This presentation will introduce OOP, its basic attributes (encapsulation, abstraction, inheritance, and polymorphism), the class mechanism, and some design principles that have led to the development of design patterns. Example C++ and Java source code will be reviewed to demonstrate the features of OOP and design principles.

**Bio:** Michael Redlich is currently a Senior Research Technician at a petrochemical research organization in Clinton, New Jersey with experience in developing custom scientific laboratory and web applications. Mike has been a member of the Amateur Computer Group of New Jersey (ACGNJ) since 1996 and currently serves on the Board of Directors as President. He has also been facilitating the ACGNJ Java Users Group since 2001. Mike's technical expertise includes object-oriented design and analysis, relational database design and development, computer security, C/C++, Java, and other programming/scripting languages. His latest passions include Meteor and MongoDB. Mike holds a BS in Computer Science from Rutgers University.

\*\*\*\*\*11:20 am to 12:15 pm\*\*\*\*\*

**Room ED-115: Workshop: Learn the Tools to Keep Your Computer Bug Free & Tricks and Tips on using Windows 8.1, Robin Kessler, R&D Internet Associates**

**Abstract:** This workshop will tell you how to keep your computer and yourself safe on the Internet. I will talk on computer safety, what antiviruses and antispyware programs are out there, and how to surf safely. I will give tips on using Windows 8.1, tell you how to make it look more like Windows 7, and give out brochures on Windows 8 and Microsoft Office 365/2013. I will also discuss why it is important to back up your computer. A fully licensed copy of Windows 8 Pro, Microsoft Office Pro 2013, and Second Copy Backup Software, as well as Malwarebytes Pro, and Startisback will be raffled off (all the prizes are free) – you must attend to win.

**Bio:** Robin Kessler has developed programs to help members of her community understand how computers affect their lives by teaching and giving seminars on how to use a computer; taking away the fear of the unknown. Robin works with various companies to test software and operating systems prior to their release to the public through her association with R&D Internet Associates, a company that repairs, helps clients purchase computers, and teaches clients how to use their computers. Most of her clients are in the 48+ age range. She gives beginner classes and seminars on learning how to use Windows 7 and 8 to various organizations in and around Central NJ. She also gives seminars at libraries, adult committee centers, non-profit organizations and businesses.

**Room ED-211: Social Media Opportunities: From Intern to VP of Strategy, Donald Hsu, Dominican College**

**Abstract:** Social Media sites such as Chive, Facebook, Flickr, Foursquare, Google+, LinkedIn, MySpace, Pinterest, Reddit, Shutterstock, Tumblr, Twitter, YouTube are hot and hundreds of new ones being created every week, if not every day! If you have 400 friends on Facebook, 500 followers on Twitter, 300 on LinkedIn; can you monetize this friendship? Yes, you can. Companies are hiring in Social Media for many positions, from intern to CEO. Salaries range from \$35,000 to \$120,000 per year. Using the 10001 zip code, Monster.com generated 43 jobs; CareerBuilder.com had 423 openings; Dice.com 1160 jobs; and Indeed.com 4,994 jobs; all in Social Media. Donald Hsu will give you specific details on how you can join a corporation as a Social Media expert. Don't miss this talk!

**Bio:** Donald Hsu, PhD is a professor at Dominican College and President of the Chinese American Scholars Association (CASA). He has taught 70 subjects from Accounting to Unix to >11,000 clients/students at AT&T, Bank of America, Ford, Goldman Sachs, IBM, JPMChase, Mercedes Benz, Microsoft, Morgan Stanley, Siemens, Sony, Toyota, Volvo, and Verizon. CASA ran 16 successful E-Leader conferences in Asia and Europe, <http://www.g-casa.com>. He traveled to 74 countries, Africa, Asia, and Europe for international business. His profile with 4,500+ contacts can be found at <http://www.linkedin.com/pub/donald-hsu/0/15/A14>.

**Room ED-209: Stock Market Timing Using Artificial Neural Networks, Donn Fishbein, Nquant.com**

**Abstract:** Timing financial markets is essential in order to maintain a consistent rate of return. Buy and hold strategies work well only when the markets are headed north. Market downturns can be rapid and severe and take years to recover from. This talk will first discuss why market timing is a

necessary strategy. Next an introduction to artificial neural networks and genetic algorithms, and their application to technical analysis will be presented. A practical system for timing the markets using these tools will be introduced. Finally, methods to test and prove a trading system valid will be discussed.

**Bio:** Donn Fishbein, M.D., Ph.D., is a physician and scientist who has investigated and traded the financial markets for 25 years. His particular area of interest is mathematical systems with biological roots. For the past fifteen years, his focus has been on hybrid artificial neural network and genetic algorithm systems, both for end-of-day trading and more recently for day trading systems. He has lectured on these subjects, describing profitable systems for trading equities, exchange traded funds, and index futures. He contributes trading signals to a neural net trading website and offers consulting services and private development of trading systems based on these technologies.

**Room ED-208: Tour Guiding Robot, Harrison Billmers, TCNJ**

**Abstract:** Our goal is to design a robotic solution that will capture guests and prospective students with engaging demonstrations. The robot will “walk” beside a human tour guide and interact with guests using body language, speech, and multimedia display. The demonstration will include media information pertaining to the School of Engineering and a designed tour that will maximize our robot and Engineering Ambassadors’ potential.

**Bios:** The four members of our robot design team are Harrison Billmers, Mike DiMeo, Andrew Specian and John Spurduto. A brief biography of each member can be found at <http://tcnjroscoebot.wordpress.com/team-members/>.

**Room ED-207: TCF@40 - A Progress Report, Allen Katz, TCNJ**

**Abstract:** This talk will review TCF's history, and report on plans for the 40<sup>th</sup> TCF in 2015. Pictures will be shown from the first and other notable TCFs, including TCF2013. Audience participation will be encouraged and suggestions solicited on how to make TCF@40 truly, truly special.

**Bio:** Allen Katz is a professor of Electrical and Computer Engineering at The College of New Jersey. He is a co-founder of the Trenton Computer Festival and has been the festival's director for more than 20 years. He has more than 25 years of experience in the microwave, satellite and computer industries. He holds 17 patents and has authored more than 100 technical publications. He is founder and President of Linearizer Technology, Inc. He has been a licensed Radio Amateur since 1956. He received the ARRL Technical Merit Award in 1976, the John Chambers Award in 1982, an IEEE Centennial Medal in 1984, the Martin Marietta Astro Inventor of the year award in 1993, and in 2002 the William Randolph Lovelace II Award for outstanding contributions to space science and technology. He is a Fellow of the IEEE.

**Room ED-206: Best Websites and Search Engines 2014, Eva Kaplan, Computers + Kids Camp/Pennington Computer School/Chromotherapy for the Digital Age**

**Abstract:** Are you aware of Google's expansive 21<sup>st</sup> century applications and its revamping of website page ranking? Our TCF's Web Guru will detail it. Of course, her emphasis will continue to be introducing new and alternative search engines, directories, and "networking" sites centered on research sharing and professional connectedness. Along with sharing her latest discoveries such as wisegeek.com – there will be a wide-range of Internet updates, academic sites, interactive arts and science sites, literary sites, free downloads of innumerable business, teaching, and even tracking applications...

**Bio:** Eva Kaplan has been with TCF since 1976. During her 30 years as the founder/director of Computers + Kids, her approach has epitomized the concept of today's STEM. Eva has been a school IT administrator, given professional development courses, and has been a consultant to schools - especially in using computers for both G & T and special needs education. Eva will be introducing her upcoming website. Contact: [evakaplan@cs.com](mailto:evakaplan@cs.com).

**Room ED-113: Where did mobile computing come from, anyway?, Evan Koblentz, Mid-Atlantic Retro Computing Hobbyists (MARCH)**

**Abstract:** There's a good chance you are viewing this web page on a tablet, smartphone, or laptop. Ever wonder where portable computing started? Prepare to be amazed if you attend this lecture! Evan will guide you backward through time, after which you'll appreciate your Communicator and Tricorder in new ways.

**Bio:** Evan Koblentz is president and co-founder of the Mid-Atlantic Retro Computing Hobbyists (MARCH) which is a non-profit user group for collectors and restorers of vintage computers.

**Room ED-109: Workshop on Android App Development continued**

**Room ED-107: Arduino Workshop, continued**

**Room ED-110: OOP University - Getting Started with C++, Michael Redlich, ACGNJ**

**Abstract:** C++ is an object-oriented programming (OOP) language created by Bjarne Stroustrup at AT&T Labs that was first introduced to developers in 1985. It is one of the most popular programming languages and is usually the language of choice for applications such as systems software, device drivers, embedded software, and high-performance client/server applications. This presentation will introduce the C++ programming language, provide a brief overview, how to get started, review some C++ keywords, introduce the C++ class mechanism, and review a small, working C++ application. Since knowledge of OOP is vital in the development of robust applications, the OOP paradigm will also be introduced along with a brief discussion of the advantages of OOP over structured programming. An example C++ application will demonstrate how the attributes of OOP are utilized within C++ classes.

**Bio:** See OOP University at 10:15 am.

\*\*\*\*\*12:25 pm to 1:20 pm\*\*\*\*\*

**Room ED-115: Workshop on Bug Free Computers, continued**

**Room ED-211: Professional Development - Continuing Education and Skills Development, Susan Schueller, Harvard University**

**Abstract:** As a senior-level information technology professional, I will share my insights on my diverse career experience, along with my current pursuit of an advanced degree in information technology. By invitation, I have given related presentations in recent years to several Boston-area professional organizations. My goal for this conference is to present my discussion to a wider IT professional audience, in order to continue encouraging others to seek further development of their education and skill set. My presentation will include the following topics: 1) Keeping up with technology and skills development through ongoing education (e.g. short-term courses, degree programs, certification and renewals, on-line and classroom training); 2) Overcoming challenges during pursuit of further education; 3) Diversifying skills through contracting opportunities (wearing more than one hat); 4) Seeking a mentor, becoming a mentor (educational outreach); 5) Participating in career and skill development workshops offered by professional organizations (seeking opportunities available for both members and guests); and 5) Building confidence and validating knowledge.

**Bio:** Susan M. (Chaisson) Schueller is a software engineer in the Metropolitan Boston area. She is currently employed at Harvard University while pursuing her Master's Degree in Information Technology part-time at her alma mater, UMass-Lowell. She received her Bachelor's Degree in Computer Science from UMass-Lowell. Susan's diverse career in software engineering includes experience at Harvard University, Draper Laboratory, Raytheon, iRobot, Polaroid, Digital, Compaq, Hewlett-Packard, Wang Laboratories and Computervision. She has been commended by her managers and peers for her teamwork, expertise, focus and mentorship. Susan is a member of the Society of Women Engineers (Boston Section), IEEE/Women In Engineering (Boston Affinity Group), and the American Society for Quality (Merrimack Valley Section). She is an ASQ Certified Software Quality Engineer. In SWE, Susan volunteers for educational outreach activities such as K-12 workshops, Girl Scout badge events, panel discussions, career fairs and mentoring. By invitation, Susan has given several presentations about her career and education to several Boston-area professional organizations. Susan is also a volunteer musician in several New England community music ensembles, performing on flute, piccolo, alto flute, bass flute and cello. She is an avid archer, runner and cross-country skier.

**Room ED-209: Internet Job\$\$\$, Donald Hsu, Dominican College**

**Abstract:** The stocks of Apple, Disney, Expedia, Google, LinkedIn, Oracle and Priceline are up. Yes, the economy is back. Retirees are going back to work! Eighty percent of people have jobs from the Internet. Accounting needs 2.1 million by 2019 (Forensics, QuickBooks, PeachTree, MS Dynamics); application developers (C++, Java, C#) - thousands of jobs, but no applicants; cloud computing (Amazon, Dropbox, IBM, Microsoft, Salesforce, VMWare, Virtualization); database (MS Sql server, Oracle 11g, SAP, Data Warehouse), starting at \$85,000; networking (Cisco, Info Security, A+, Network+, CIEE, CISSP); systems (Unix, Linux, Window 7/8); Analytics (IBM RSA, IBM SPSS, SAS), Social Media Manager (FaceBook, Twitter, Pinterest, Shutterstock), Business Intelligence (Project/Product Manager, Global Finance, Sales/Marketing of Tech Product/Services). Computer majors are down 50 to 80% in US universities. This means more jobs for you and me. Bring a resume and get a free critique from the speaker.

**Bio:** See ED-211 at 10:15 am

**Room ED-208: TCNJ Autonomous Ground Vehicle, Jason Scott, Jared Milburn and Brandon Schiff, TCNJ**

**Abstract:** An autonomous vehicle to compete in the 22<sup>nd</sup> annual Intelligent Ground Vehicle Competition at Oakland University in Rochester, Michigan is being developed at TCNJ. The goal is to construct a vehicle that can navigate its way through an obstacle course by receiving GPS waypoints and using fast acting code to detect and avoid obstacles in its path. The designs of vehicles used in previous competitions were researched first. The mechanical engineering members of the team have designed an improved frame for the vehicle, as well as the drive train. The computer engineering members have developed improved computer code based on work done last year for the control of the webcam, laser range finder, GPS, compass, caution light, and drive train. This talk will discuss the design of the 2014 vehicle.

**Bios:** Jason Scott is a senior computer engineering major and an active member of the IEEE Student Branch. He enjoys the challenges and problems of circuitry, technological systems, and computer programming. His job on the autonomous vehicle project is to check and test the sensors on the vehicle and program part of the path-planning algorithms of the automation. Jared Milburn is also a senior computer engineering major. His job on the autonomous vehicle project is to create and program the algorithms for the automaton and to manage the data from the sensors on the vehicle. Brandon Schiff is the project manager of the group. He is a senior mechanical engineering major. As the project manager he is in charge of organizing meetings and managing the budget. He is also the designer of the vehicle's drive train.

**Room ED-207: The Exponential Growth of the Internet-of-Things (IoT), Joe Jesson, TCNJ and Joseph E Jesson PC**

**Abstract:** As the cellphone industry becomes saturated with folks owning mobile phones, the cellular and satellite carriers are turning their attention to objects and assets communications. This entirely new business is becoming known as the Internet-of-Things, or simply IoT, is heating-up with billions of assets communicating wirelessly. IoT involves machine-to-machine (M2M) communications using massive arrays of sensors to fuse data and assets. Today, we are seeing ocean-going ships (AIS), Airplanes (ACARS), Trains (RFID), Trailers, Autos, and soon containers, and every type of asset communicating wirelessly to each other. A large (160,000) wireless asset case study is presented in Joe's new book on the IoT, to be published by CRC Publishing in June of 2014.

**Bio:** Joe Jesson is President and CTO of Joseph E. Jesson PC & Sigint.com consulting company and a visiting professor at TCNJ. Joe worked as a Senior Engineer for Motorola in the 1970s and as an Engineering Manager at Oak Technology, Switchcraft in the early 80s, and Amoco Oil for 13 years. He was the co-founder and CTO of General Electric's Asset Intelligence M2M business and was awarded GE's Edison award in 2007.

**Room ED-206: Visualizing the Future: How Augmented Reality can empower teachers, inspire students and bring ideas to life in the classroom., Craig Kapp, New York University**

**Abstract:** Imagine being able to rotate around the solar system, navigate through a data set in 3D, and interact with a simulated ecosystem - all from the palm of your hand. With Augmented Reality, it's possible! Augmented Reality (AR) is a technique through which 3D virtual objects can be overlaid onto the "real world" in real-time, using nothing more than a home computer or a mobile device. In this session we will explore various educational uses of augmented reality including scientific simulations, digital storytelling, assistive technology and data visualization and show how teachers can use these tools to engage and inspire students.

**Bio:** Craig Kapp is an interactive developer who has spent over ten years working to find ways to bring cutting edge digital technologies into educational settings. He currently serves as a Clinical Assistant Professor of Computer Science at the Courant Institute of Mathematical Sciences at New York University, and is the CEO of ZooBurst LLC, a web-based startup that focuses on bringing augmented reality digital storytelling tools into classrooms around the world. His interests include exploring new ways in which humans can interface with technology using computer vision, educational technology solutions, augmented reality, data visualization, digital storytelling and developing assistive technologies for people with disabilities.

**Room ED-113: Google Glass, Barry Burd, Drew University**

**Abstract:** See a demo of Google Glass's features, and try the device for yourself! Learn how simple Glass apps are created using the Mirror API and the GDK (the Glass Development Kit).

**Bio:** See ED-109 at 10:15am

**Room ED-109: Visualize the Brain in 3D, Xuefeng Wei, TCNJ**

**Abstract:** Visualizing the brain, not just a generic one but a specific one like yours, does not just look cool but can be potentially of vital importance - for example, in the case when one has to undergo a brain surgery. Deep brain stimulation is a surgical treatment involving the implantation of a medical device called a brain pacemaker, which sends electrical impulses to specific parts of the brain. To date, this kind of treatment has benefitted over 80,000 patients worldwide with Parkinson's disease. In this talk, I will demonstrate how engineers can use computer graphics to reconstruct a patient-specific brain in 3D, which allows surgeons to interactively position the brain pacemaker precisely to the targets, and to fine-tune adjustments once the brain pacemaker is implanted.

**Bio:** Xuefeng Wei is an Assistant Professor of Biomedical Engineering at The College of New Jersey. Prior to his appointment with TCNJ in Fall 2013, he worked as a postdoctoral fellow at Medical College of Wisconsin, when he developed an interest in computer graphics applied to human brain. Xuefeng received his Ph.D. degree in Biomedical Engineering from Duke University in 2009. His research interests include neural engineering, neural prostheses, and computational neuroscience.

**Room ED-107: Arduino Workshop - continued**

**Room ED-110: OOP University: C++ Advanced Features, Michael Redlich, ACGNJ**

**Abstract:** C++ is an object-oriented programming (OOP) language created by Bjarne Stroustrup at AT&T Labs that was first introduced to developers in 1985. It is one of the most popular programming languages and is usually the language of choice for applications such as systems software, device drivers, embedded software, and high-performance client/server applications. This in-depth seminar will cover some of the advanced features of C++. Four topics will be presented: overloaded operators, templates, exception handling, and namespaces. Each of these topics will be individually discussed and sample code will be reviewed to demonstrate how each feature is implemented. There will also be an introduction to the Standard Template Library.

**Bio:** See 10:15am

\*\*\*\*\* 1:30 pm to 2:25 pm \*\*\*\*\*

**Room ED-115: Microsoft Office in 2014, David Soll, Omicron Development, LLC**

**Abstract:** At the beginning of 2013, Microsoft released its newest version of its Office Suite. This suite, which includes Word, Excel, PowerPoint, OneNote, Access, and more, is available in both a "thick client" (or traditional version) and as a hosted or "Cloud" version. The release of Office 2013 also marked the first time that Office could be purchased on a lease basis rather than an outright purchase. David Soll will demonstrate Office 2013 as well as discuss its various options, developments during the past year and the future of the suite.

**Bio:** David Soll is the CTO and President of Omicron Development, LLC. He is responsible for the overall technical direction and technology solution set provided by Omicron. David received a BS in Electrical Engineering from Drexel University and has been working in Information Technology for over 25 years, more than 20 of them with Omicron. He is currently the Vice-Chair of the Princeton Central Jersey chapter of the IEEE Computer Society and is a senior member of the IEEE. David is also the past Chairman and current board member of the Princeton chapter of the ACM and a senior member of the ACM. David has a long history of innovation working with Microsoft. He has worked with virtually every version of operating system that Microsoft has produced and has given many presentations on them. He received a prestigious IEEE Region 1 Award from technical contributions to information technology. He also is the founder and current chairman of the IEEE/ACM IT Professional Conference held in conjunction with TCF

**Room ED-211: The Dos and Don'ts of Data Visualization: How to avoid being lead astray by your data and how to create a winning strategy, Jennifer Shin, 8 Path Solutions, LLC**

**Abstract:** Data visualization is growing in popularity, but there is a wide range of opinions on the requirements for creating one. This talk will focus on data visualization from the perspective of a data scientist and present real world examples ranging from environmental grants to theoretical mathematics. The talk will begin by presenting an overview of the present state of data visualization including the tools and methods for representing data. It will also review pitfalls as what can be done to avoid being led astray by data, and how to approach developing a strategy that works.

**Bio:** Jennifer Shin is the Founder and Principal Consultant at 8 Path Solutions, LLC, a management consultancy and data science startup that meets the growing need for scientifically engineered solutions to tackle real world challenges. Her approach focuses on integrating the core elements (people, process, technology, expertise) to create innovative strategic, technical, and data science solutions. Jennifer received her Bachelor Degree in Economics, Mathematics & Creative Writing from Columbia University and a Master Degree in Statistics from the Graduate School of Arts & Sciences at Columbia University. Her current projects include blogging for SCORE, working with undergraduate and graduate students as an Executive on Campus at Baruch College, and developing a series of instructional videos with eHow.

**Room ED-209: Business 101 for Techies, Mark Streitman, Evolutionary Thought, LLC**

**Abstract:** How do you take a great idea and make it into a profitable business? Of course hard work is a given, but what a tech person really needs is an additional set of tools to be successful - Business Tools. Sure, you can design, invent, build or program your creation, but can you plan, manage, market, sell or do the accounting? Understanding these additional tools will make or break your business. You will be shown the process of choosing the right idea, web site or invention, and turning it into a money making business.

**Bio:** Mark Streitman is senior software engineer and professional speaker. He has an expertise in computers, science and business. He designs and implements real-time business engines for search and other customized needs. Mark also speaks on business technology and has had his own business, Evolutionary Thought since 2004. He also created the world's first Portable Foucault Pendulum. Mark has achieved an advanced certification in Toastmasters, and is an excellent cook and chess player.

**Room ED-208: A Low Profile Antenna for SATCOM on the Move, Klevore J. Burden and Katalin Frolio, TCNJ**

**Abstract:** The goal of this project is to design and implement a low-profile antenna system for Ka-Band mobile satellite communications, which is known as SATCOM on the Move. The satellite Ka-band receive (from the satellite) frequency is near 20 GHz and transmit (to the satellite) is near 30 GHz. Our team is building upon work done last year, and will produce an antenna system with greater gain and better tracking performance. The new design will include an enlarged offset reflector with better mechanical stability and accuracy, and a feed horn with a directional pattern that better matches the reflector's shape. A hybrid elector-mechanical satellite tracking system employing a motor-pulley mechanism will offer a lower profile and faster reaction to changes in vehicle pitch and roll. An on-board computer will track a target satellite, while operating motors to keep the entire unit level with the ground. The ultimate goal of this project is to allow continuous two-way satellite communications from a vehicle in motion over rough terrain.

**Bios:** The group behind the SATCOM on the Move project is comprised of five devoted senior engineering students from The College of New Jersey. Klevore Burden is an electrical engineering major and focuses his efforts on the software and tracking system of the project. Daniel Fisher is also an EE major, and works on the parabolic and plane reflectors for the system. Katalin Frolio is another EE major and is working on the design of the feed antenna for the reflector. Kristy Winchock is a mechanical engineering major and is tasked with preparing the mechanical leveling of the system. David Calzavara is also an ME major, and is working on the design of the rotation system.

**Room ED-207: The Continuing Evolution of Dedicated Console Computer Games, Roger W. Amidon, DX Computer Company**

**Abstract:** The world of video games has been evolving lately due to the abundance of smartphones with the computing ability to compete with the hand held computer gaming systems of just a few years ago. Think "Angry Birds." For serious gamers, the dedicated console is still king, with XBOX, SONY and Nintendo at the forefront. We will demonstrate Nintendo's latest entry: The "Wii-U." Finally, Nintendo now has a full HD 1080p video platform - and we will demonstrate the latest Zelda game developed for that machine! We will also discuss the convergence of video games with robotic warfare systems. In the future, will we have our own personal "Drones" to protect us from evil? Will our police force be using robotic drones to watch over certain areas of our cities? Stay tuned...

**Bio:** Roger has been giving a talk every year of the Trenton Computer Festival and, along with his sons and nephews, has been involved with video games since 1990. Although not currently actively developing games, he still maintains a strong interest in the technology.

**Room ED-206: Computer Science Education: Good for Our Students, Good for Our State, Daryl Detrick, Computer Science Teachers**

#### **Association of NJ**

**Abstract:** By the year 2020, there is expected to be over 1 million more job opening in computing than there are qualified candidates in America. However, only 10% of the schools in the nation offer computer science courses. How can we better prepare our students to take advantage of these opportunities?

**Bio:** Daryl Detrick graduated from Cornell with a degree in engineering. He has been teaching math and computer science at Warren Hills HS for the past 19 years. He is president of the Computer Science Teachers Association of Central NJ (CSTACNJ) and the NJ representative to the Computer Science Teachers Association National Advocacy Leadership Team (CSALT). He is involved with CSTANJ's effort to Make Computer Science Count as a math or science class in NJ (3+3+STEM).

#### **Room ED-113: Cloud Services - Is it Time to Move into the Cloud?, Joe Budelis, Persimmon Telecommunications**

**Abstract:** The world is drifting toward more and more use of services in the cloud. Many organizations are finding that moving services to the cloud is cost effective and a wise decision from the point of view of management and *business continuity*. Topics discussed will be: 1) How a firm's employees can enjoy the benefit of 10 Gig Internet connections, 2) How quick restoration of servers becomes easy, 3) How security updates, OS upgrades and hardware changeovers become straightforward. Although some of the discussion, especially the first part, will be useful to an individual, the presentation is mainly applicable to organizations for which PCs and servers are critical to their mission.

**Bio:** Joe Budelis has performed IT or business consulting with such diverse assignments as Senior Financial Analyst, SAS Data Analyst, Business Infrastructure Manager and Data Base Administrator. Currently, Joe assists businesses to find cost-effective Telecommunications and Cloud solutions; primarily consulting on, and selling, such services as Cloud Services; T1, DS3, Fast Ethernet, Gig-E and OC3 voice and data, MPLS, SIP, VoIP phone services and conferencing services. For more information see his blog at <http://persimmontelecom.blogspot.com/>. Joe has a PhD from Harvard in Decision and Control.

#### **Room ED-109: Python on Raspberry Pi, Bill Brutzman, ACGNJ**

**Abstract:** This talk is about Python applications running on a Raspberry Pi (RPI). Raspberry Pi is a \$40 Linux computer about the size of a deck of playing cards. The Raspberry Pi can connect to the Internet, run a GUI browser, and do almost everything that a PC or Mac can do. The RPi can be used as a home server to control electric lights (automatically adjusting for sunrise and sunset using data from the Internet). RPi can be a laser and photo-detector, counting metal parts at a manufacturing facility. RPi can capture and log data to a web-hosted MySQL database.

**Bio:** Bill Brutzman currently works as a web-apps and database developer in Northern New Jersey.

#### **Room ED-107: Arduino Workshop - continued**

#### **Room ED-110**

#### **OOP University - Getting Start with Java, Michael Redlich, ACGNJ**

**Abstract:** Java is an object-oriented programming (OOP) language created by James Gosling at Sun Microsystems that was first introduced to developers in 1995. It is one of the most popular programming languages for client/server web applications and there are many scripting languages (e.g., Clojure, Groovy) that seamlessly interact with Java. Much of Java's language syntax was derived from the C++, but as James Gosling once stated, "Java is C++ without guns, knives, and clubs." This presentation will introduce the Java programming language, provide a brief overview, how to get started, review some Java keywords, introduce the Java class mechanism, and review a small, working Java application. Since knowledge of OOP is vital in the development of robust applications, the OOP paradigm will also be introduced along with a brief discussion of the advantages of OOP over structured programming. An example Java application will be used to demonstrate how the attributes of OOP are utilized within Java classes.

**Bio:** see ED-110 at 10:15 am

\*\*\*\*\* 2:35 pm to 3:30 pm \*\*\*\*\*

**Featured Keynote Speaker: The Internet of Things (IoT) - Joseph Salvo**

\*\*\*\*\* 3:40 pm to 4:35 pm \*\*\*\*\*

**Room ED-115: Introduction to Windows 8.1, David Soll, Omicron Consulting**

**Abstract:** Microsoft's latest operating system, Windows 8, provides a vast departure from all previous versions of Windows. Microsoft has chosen to redesign the user interface from the ground up in order to support a wider array of devices such as PCs, tablets, and smart phones. This drastic change means a change in how the operating system is used and how it integrates into other applications now that the "Cloud" is so prevalent. David Soll will demonstrate and talk about Windows 8, its pluses and minuses. He will discuss what "Cloud" integration means to you and the variety of editions of Windows 8. This talk is designed to help the attendee better understand if a move to Windows 8 at this time is worthwhile or if you should continue with a previous version of Windows.

**Bio:** see ED-115 at 1:30 pm

#### **Room ED-211: What the Internet of Things Will Mean to CIOs, Nauman Chughtai**

**Abstract:** Estimates suggest that as many as 50 billion devices will connect to the Internet by 2020. Internet-enabled refrigerators and garage door openers sound intriguing, but are they really worth the trouble? Learn if the hype is real or not and why enterprises are still giving it a cold shoulder.

**Bio:** Nauman Chughtai is a versatile senior executive with experience in high-tech, IT and operations roles. His professional experience includes building a wide range of software, from retail client server systems to cutting-edge development tools and ecommerce applications. He has a BS in Computer Engineering from University of Central Florida and an MBA from Rutgers University.

#### **Room ED-209: Your Career – Don't Let it Manage You (A few Tips to Manage Career Security), Bala Prasanna, IEEE**

**Abstract:** While no one can give job security, one can strive for career security through career growth. An important component of career growth is by learning and practicing soft skills. In this context, note that workplace habits and expectations have changed significantly in the last few years. Surviving and thriving depends on your ability to grasp the broader picture and hone some essential skills. In this context, the presentation will offer tips to be relevant and successful in today's workplace.

**Bio:** Bala Prasanna joined IBM in May 2005 as a program manager. He began his career as an assistant professor at SUNY University – Oswego and then worked at AT&T Bell Labs for over 20 years in several job positions. Bala Prasanna volunteers as an ExCom member and Treasurer in IEEE Region 1. He is a senior member of the IEEE and a recipient of IEEE Millennium and IEEE Region awards for his leadership.

#### **Room ED-208: Robotics - An Introduction, Orlando Hernandez, TCNJ**

**Abstract:** Robotics is the science and technology of robots, their design, manufacture, and application. It requires a working knowledge of electronics, software, and mechanics. Before the coining of the term robotics, there was interest in ideas similar to robotics, namely automata and androids, dating as far back as 400 BC. Robots are used in industrial, military, exploration, home, academic, and research applications. Although the appearance and capabilities of robots vary vastly, all robots share the features of electronic sensors, and a movable structure under some form of autonomous electronics, computer, and software control. This presentation introduces the element of robotics with examples of uses and future trends. It is further enhanced through many multi-media based examples of the state of the art and further directions of research.

**Bio:** Orlando J. Hernandez received the Ph.D. degree in electrical engineering from Southern Methodist University. He is an Associate Professor and Chair of Electrical and Computer Engineering at TCNJ. Previously, he worked for Texas Instruments and Maxim, where he held positions in design and design management. His research interests include color image segmentation and retrieval, computer vision, image processing, and high-performance specialized VLSI architectures to perform these tasks.

#### **Room ED-207: Wireless Communications Architecture from Spark Gap to Software-Defined Radio (SDR), Joe Jesson, TCNJ and J. E Jesson PC**

**Abstract:** Joe Jesson will speak on the evolution of wireless communications architecture since WWI through today's state-of-the-art SDR radios. Joe first learned about WWI Communications technology - Spark Gap and Geleena diodes from his amazing 1965 mentors Ray Whitley (1909 License NS) and Ed Raser (1914 License 3NG). He has studied Major Armstrong's regeneration patents, which describes how to engineer variable-Q regeneration in a TRF design.

**Bio:** see ED-207, 12:25 pm



**Room ED-206: Discovering Your Personal Brand, John LeMasney, Consultant**

**Abstract:** In this talk, technology and design consultant John LeMasney will discuss the key ways in which you can determine, shape, and reinforce your personal brand. Personal brand is the reason that people feel love, dislike, or indifference towards you, and using technology, visuals, social media, and interpersonal interactions, you can use your brand to help you gain influence, gather an audience, and find new successes. Come to the session with three keywords that you feel represent you well. Also, do a Google search on LeMasney and see if you can choose three keywords that you feel best represent him. If John is doing his branding right, it should be very clear the ideas and things that represent him. Fun and discovery await you!

**Bio:** John LeMasney now offers consulting in technology, design, communication, branding, and nutrition. He was the Manager of Educational Technology Training and Outreach at Princeton University from March 2011 to March 2013. He had worked from 1998-2011 at Rider University as the Manager of Technology Training. He was recently awarded a Master of Arts in Organizational Leadership with honors from Rider University and a Bachelor of Fine Arts in Sculpture with honors from the University of the Arts in Philadelphia, PA. He is a designer, artist, writer, poet, technologist, consultant, open web advocate and open source evangelist.

**Room ED-113: Building a Public WiFi System Using PfSense, Douglas Ferguson, ACGNJ**

**Abstract:** Providing wireless access to the public need not be an expensive nor complex solution. We will examine how a wireless system was built for my church using open source software (pfSense) to provide access for visitors, staff members, and visiting clergy.

**Bio:** Doug Ferguson is a Principal Support Engineer for the Advanced Software Division of EMC supporting a variety of network management products. He is also a computer hobbyist who loves learning about new technologies. Having taught himself to program in high school, he continues to explore numerous areas of computers including video editing, web design, visualization, and robotics. He is the "Network Czar" of his local church, Bethlehem Evangelical Free in Randolph, NJ. Doug has been a presenter at TCF since 2002.

**Room ED-109: A visually exciting and mentally stimulating slide show: Anamorphic Art - From Leonardo to Modern Times, William Silverman, Brookdale Computer Users Group**

**Abstract:** This talk is about anamorphic art. Topics include what anamorphic art is, its history, how to use your computer to create your own anamorphic self portrait, and how to make reflectors to see the results.

**Bio:** William Silverman is a retired high school teacher who taught chemistry and physics, along with most of the other branches of science. After retiring he went back to school to earn an associate degree in computer graphics. Presently, he is a trustee of the Brookdale Computer Users Group, [www.BCUG.com](http://www.BCUG.com) and the head of their computer graphics workshop. He is also a Master Gardener and member of the Deep Cut Orchid Society.

**Room ED-107: Controlling the World with Arduino, Paul Bergsman, Consultant**

**Abstract:** Embedded Controllers were for many years implemented using First Microchip's PICs, then Parallax's Basic Stamps were popular, and now it's Arduino Products' turn. If you are looking for an efficient method of introduction to working with micro-controllers, then Arduino is the answer. Using a short video, and "show-and-tell" examples, Paul Bergsman will introduce you to Arduino's world of sensors, data logging, and robotic control.

**Bio:** Paul Bergsman, now retired, taught Industrial Arts Technology in the Philadelphia public schools for twenty seven years. Along the way, he obtained a U.S. patent for a unique electro/mechanical lock cylinder, authored a book, ("Controlling The World With Your PC") about interfacing motors, lights, and sensors to a computer's parallel printer port, which remained in print for ten years. His latest interest is Arduino.

**Room ED-110: OOP University - Java Advanced Features, Michael Redlich, ACGNJ**

**Abstract:** Java is an object-oriented programming (OOP) language created by James Gosling at Sun Microsystems that was first introduced to developers in 1995. It is one of the most popular programming languages for client/server web applications and there are many scripting languages (Clojure, Groovy) that seamlessly interact with Java. Much of Java's language syntax was derived from the C++, but as James Gosling once stated, "Java is C++ without guns, knives, and clubs." This in-depth seminar will cover some of the advanced features of Java. Four main topics will be presented: Java Beans,

exception handling, generics, and Java Database Connectivity (JDBC). Each of these topics will be individually discussed and sample code will be reviewed to demonstrate how each feature is implemented.

**Bio:** see ED-110 at 10:15 am

**SPECIAL EXHIBITS IN THE ED LOBBY**

**Adventures in 3D Printing, Rebecca Mercuri, Notable Software, Inc. and Kevin Meredith, Drexel University (in ED-200)**

**Abstract:** IEEE Princeton/Central Jersey Section's MakerBot Replicator II and RepRap Prusa Mendel 3D printers will be demonstrated. Pros and cons of DIY kits vs. off-the-shelf printers, PLA vs. ABS filament, and other related topics, will be discussed. Attendees will learn about free/open resources, such as for design software and object downloads. Yes, we have printed a (rubberband) gun. Bring your questions about this technology and we will try to answer them!

**Bios:** Rebecca Mercuri, Ph.D. is the President and Lead Forensic Expert at Notable Software, Inc. <[www.notablesoftware.com](http://www.notablesoftware.com)>. Kevin Meredith is a Mechanical Engineering major at Drexel University.

**Quadcopter Demonstration, Sam Zeloof, Delaware Township Middle School and Boy Scouts**

**Abstract:** Sam Zeloof will demonstrate a quadcopter he designed and fabricated. He made it from 1/32" carbon fiber and 3D printed parts. The gyroscope controller board is running custom stabilization algorithms. During flight, it transmits live telemetry and live video back to his ground station via 23 cm amateur radio band. It has a total range of 5 miles.

**Bio:** Sam is a 13 year old with an interest in Quadcopters, vintage computers, amateur radio (KD2ENL) and much more. He is a student at Delaware Township Middle School and working to become an Eagle Scout.

**An Electrical Power System Remote Load Emulator, Jason Boxer and Vincent Carbone, TCNJ**

**Abstract:** It can be problematic to test or add components to large power systems based on their size, compatibility and general immobility. The scaled remote load emulator being developed allows for small pieces of power laboratory systems to be interconnected with larger systems by emulating the behavior of the larger system.

**Bios:** Jason Boxer is a senior Electrical Engineering major at TCNJ. He is a member of the Alpha Epsilon Pi fraternity. Vincent Carbone is in his fourth year in electrical engineering at TCNJ and is also pursuing a management minor. He is a member of the engineering honor society, Tau Beta Pi.

**Epileptic Monitoring Device, Timothy Skinner, TCNJ**

**Abstract:** The Epileptic Monitoring Device (EMD) is a portable device with two separate units: a head-mounted EEG recording system and a data viewing application on an Android platform. An alarm will be triggered when the application detects seizure-like activity. The digital signal is sent via Bluetooth transceiver to the mobile device where it is processed and viewed using the Android application.

**Bios:** Timothy Skinner is a senior electrical engineering major at TCNJ. He is responsible for the EEG signal filtration, wave transmission, battery life, and emergency notification system for the project.

**Title Energy Harvesting, Alex Manoski and Nick Steponanko, TCNJ**

**Abstract:** This project examines the theory and application of wireless energy harvesting of ambient radio frequency (RF) signals at frequencies of 2.45 GHz using a light-weight rectenna. The design is made to compete in the IEEE International Microwave Symposium (IMS) 2014 Student Design Competition for RF energy harvesting.

**Bio:** Alex and Nick are TCNJ senior electrical engineering students.

**The Sarnoff Museum Tours 9 am to 3pm in RWH:** The collection is named in honor of David Sarnoff, longtime chairman of RCA and founder of NBC. It comprises over 6,000 artifacts that document major developments in communication and electronics in the 20th century. Highlights include the telegraph key used by David Sarnoff to coordinate the rescue of survivors from the Titanic, America's first commercially available electron microscope, the first color television picture tube, and early examples of magnetic core computer memories, light-emitting diodes, and liquid crystal displays. The museum was formerly housed at the David Sarnoff Library, located on the site of RCA's central research laboratory in Princeton. When the library closed, the artifact collection was transferred to TCNJ, where it serves to inform and inspire students of all ages about RCA and its contributions to the history of electronic innovation. (See map for location.)

	ED-115	ED-211	ED-209	ED-208	ED-207	ED-206	ED-113	ED-109	ED-107	ED-110	ED-204	ED
Saturday	Microsoft	IT-PC	Computer Business	Robotics	New Technology	Education & STEM	Mobile Computing	Software/ Apps	Arduino Workshop	OOP University	Amateur Radio	Exhibits
10:15am to 11:00am	Bitcoin - Currency for the Future or the Past? <i>D. Libes</i>	Strange Physical Layer World of the Industrial Ethernet <i>M. Nager</i>	Supporting Manufacturing Computer Systems <i>C. Ahlwe</i>	TCNJ Robotic Assisted Hand <i>M. Colon</i>	Software-Defined Radio Dongles for VHF/UHF Reception <i>M. Filippi</i>	Getting Started: PCs/Pads, Internet & Digital Photography <i>H. Hintz</i>	GPS Secrets Updated <i>C. Lewart</i>	Workshop on Developing Apps for Android <i>B. Burd</i>	Introduction to Arduino (Presentation)	Introduction to OOP Principles <i>M. Redlich</i>	Ham Cram 101	Special Exhibits and Demos
11:20am to 12:15pm	Workshop on keeping Your Computer Bug Free & Tips on Windows 8.1 <i>R. Kessler</i>	Social Media Opportunities <i>D. Hsu</i>	Stock Market Timing Using Neural Networks <i>D. Fishbein</i>	Tour Guiding Robot <i>H. Billmers</i>	TCF@40 <i>A. Katz</i>	Updated Guide to Best Web Sites & Search Engines <i>E. Kaplan</i>	Where did Mobile Computing Come From? <i>E. Koblenz</i>	Visualize the Brain in 3D <i>X. Wei</i>	Hands-On with Arduino (Limited Space; Bring Your Laptop!)	Getting Started with C++ <i>M. Redlich</i>	Ham Radio License Exam Preparation Cram Course	Quadcopier Demonstration Digital Photo Exhibit
12:25pm to 1:20pm		Continuing Education and Skills Development <i>S. Schueller</i>	Internet Job\$\$\$ <i>D. Hsu</i>	TCNJ Autonomous Ground Vehicle <i>J. Scott</i>	IoT Keeping Track of Your Things <i>J. Jenson</i>	How Augmented Reality can Empower teachers and Students <i>C. Kapp</i>	Google Glass <i>B. Burd</i>	Python on the Raspberry Pi <i>B. Brutzman</i>		Advanced C++ <i>M. Redlich</i>	Ham Cram Session begins at 9:00am and goes to 12:30pm	3D Printer/ RepRap Demos by IEEE-PCJS from 10:00am to 1:00pm in Room ED-200
1:30pm to 2:25pm	Microsoft Office in 2014 <i>D. Soll</i>	The Do's and Don'ts of Data Visualization <i>J. Shin</i>	Business 101 for Techies <i>M. Strelman</i>	A Low-Profile Antenna for SATCOM on the Move <i>K. Burden</i>	Evolution of Console Computer Games <i>R. Arndton</i>	Why Computer Science Education is Good <i>D. Detrick</i>	Cloud Services <i>J. Budelis</i>		Arduino on the Network	Getting Started with Java <i>M. Redlich</i>	Practice Exam given at 1:30pm	Historic Computers from M.A.R.C.H. Clubs
2:35pm to 3:30pm	<b>Featured Keynote Speaker: Joseph Salvo, Manager, Complex Systems Engineering Laboratory, GE Global Research, will talk on "The Internet of Things" in Room ED-115</b>											
3:40pm to 4:35pm	Introduction to Windows 8 <i>D. Soll</i>	What the Internet of Things will mean to CIOs <i>N. Chughtai</i>	Manage Your Career <i>B. Prasanna</i>	Robotics - An Introduction <i>O. Hernandez</i>	From Spark Gap to Software Defined Radio (SDR) <i>J. Jenson</i>	Discovering Your Personal Brand <i>J. LeMasney</i>	Building a Public WiFi System <i>D. Ferguson</i>	Computer Anamorphic Art <i>W. Silverman</i>	Controlling the World with Arduino <i>P. Bergsman</i>	Advanced Java <i>M. Redlich</i>	Conducted by the David Sarnoff Radio Club	Tour the Sarnoff Museum of Historic Technology (9am-3pm in RWH)

**WiFi Connect:** SSID: Guest-at-TCNJ3  
Login: guest747 Password: gu2avana

