SURYA TEJA PARUCHURI

CONTACT

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EDUCATION

University of Maryland, College Park, MD.
Master of Science in Telecommunications CGPA: 3.86/4.0. Top 5% Expected – May 2017
Honors: Nominated for Distinguished Student Award, 2016 ENTS Academic Scholarship.
VIT University, Vellore, India.
Bachelor of Technology in Electronics and Communication Engineering CGPA: 8.35/10 Top 10% May 2014
("Distinction" as per McGill International Grade Equivalency).

RESEARCH AND TEACHING EXPERIENCE

Voluntary Research Assistant, University of Maryland November 2016 – Present

- Assisted Institute for Systems Research post-doctoral candidate's research, by implementing and numerically verifying resource allocation algorithms for Internet of Things in MATLAB, against analytical solutions.
- Work led to co-authoring a conference paper presented at ***51st Conference on Information Sciences and Systems,*** Baltimore, Maryland, 2017.

Teaching Assistant, University of Maryland September 2016 – Present

- Assisted instructor on teaching multiple sessions of junior level course on Operations Research, by resolving students' questions, grading weekly homework, term exams and organizing make-up exams.
- Mentoring enhanced my teaching and knowledge transfer skills.

Research Project Assistant, ECE, Indian Institute of Science, India July 2014– May 2015

- Led a research team on *6LowPAN based Cyber Physical System for remote health monitoring*. Work led to Co-Authoring a conference paper presented at ***12th IEEE International Conference on Services Computing,*** New York, 2015.
- Developed project's most unique feature- Fuzzy Logic based medical diagnosis algorithm- to assess patient's health.
- Implementing a statistical signal processing algorithm for QRS detection in ECG, improved heart anomalies detection and reduced complexity significantly compared to Pan Tompkins and Wavelet based beat classification algorithms.
- Expedited deployment and field testing of Wireless Sensor Network (WSN) by accelerating debugging of the server side socket program to prevent data misinterpretation.
- Presented the project during Indian Institute of Science's Open Day 2015 and received accolades from general public.

WORK EXPERIENCE

Web Developer, Institute for Systems Research, University of Maryland June 2016 – Present

- Developed Prof. John Baras's website to organize over 750+ research papers, numerous honors and awards, courses, research project details etc., using Drupal CMS framework on a remote servers.
- The website currently serves as a central digital repository, and eliminated need to maintain different spreadsheets.

Engineering Intern, Defense R&D Organization, India January 2014 – May 2014

- Designed Radar Target Simulator (RTS) using Digital Radio Frequency Memory (DRFM), real time signal processing algorithms on FPGA for hardware in the loop testing of Active Antenna Array Unit (AAAU), Primary Radar (PR) systems.
- RTS significantly reduces testing costs through ground based testing of avionics compared to air based testing process.
- Assisting in testing of modulation module based on Error Vector Magnitude (EVM) enhanced subject knowledge.

Engineering Training, Electronics Corporation of Indian Limited (ECIL), India June 2013

- Mastered instrument calibrations process through hands-on training on calibration of electronic radioactive detectors using Cesium (Cs) and Potassium (K-40) isotope samples.

PUBLICATIONS:

- E.E.Tsiropoulou, S.T. Paruchuri and J.S. Baras, "Interest, Energy and Physical-Aware Coalitions Formation and Resource Allocation in Smart IoT Applications", in *The 51st Conference on Information Sciences and Systems (CISS 2017),* Johns Hopkins University, Baltimore, MD, 2017.
- H. Dagale, et. al, and P. Surya, " CyPhyS+: A Reliable and Managed Cyber-Physical System for Old-Age Home Healthcare over a 6LoWPAN Using Wearable Motes, " in *2015 IEEE International Conference on Services Computing (SCC)*, 2015, pp. 309 - 316.

ACHIEVEMENTS

- Nominated for Program's Distinguished Student Award, December 2016.
- 2016 ENTS Academic Scholarship for excellence in academics, December 2016.
- Secured 170/170 (98 percentile across globe) in Quantitative section of Revised GRE General Test, November 2014.
- Awarded internship at CABS-DRDO, Bengaluru, India, only one among 400+ applications, December 2013.
- Stood in top 2.7% in All India Engineering Entrance Examination (AIEEE), April 2010.
- Stood in top 5% in Engineering, Medical and Agricultural Common Entrance Test (EAMCET), May 2010.

PROFESSIONAL AFFILIATIONS:

- Student Member, Institute of Electrical and Electronics Engineers (IEEE), (since Feb'12).
- Student Member, Society for Industrial and Applied Mathematics (SIAM), (since August'16).

SELF-PUBLISHED ARTICLES

- S. T. Paruchuri, "A Note on Non-Orthogonal Multiple Access (NOMA) Techniques" (in preparation).
- S. T. Paruchuri, "Full-Duplex Systems: Comprehensive review" (under final review).
- S. T. Paruchuri, "Bluetooth: A Brief Note on Technology", Feb, 2016 (REF: terpconnect.umd.edu/~surya).

SKILLS

- *Analytical:* Linear & Nonlinear programming, Regression, Time series forecasting.
- *Programming languages:* MATLAB, Octave, C/C++, Java.
- *Typesetting & Productivity:* Windows, Linux, Microsoft Office, LaTeX, VIM.

SELECTED PROJECTS

Machine Learning based Software Defined Radios, College Park. Fall-2016

- Designing Machine learning based Intelligent Software Defined Radios (SDR) with co-operative spectral resource allocation techniques instead of competing for resources, with inspiration from DARPA's Spectrum Collaboration Challenge (SC2).

Mood-Seeker, Princeton University, NJ. Fall-2016

- Developed MoodSeeker, a self-awareness app using Microsoft Cognitive API's- to identify user emotions over a period of time, based on users photos from Mobile phone and social media feed (Twitter) during HackPrinceton.

Bluetooth Low Energy Based localization & WLAN Resource scheduling, Bell-Works, NJ. Summer-2016

- Received accolades from Bell-labs & ZTE researchers for presenting conceptual work on "BLE based localization & WLAN resource scheduling" at Major League Hacking-Prime, Spring Finale.
- Invited by ZTE Scientists to submit the same for ZTE's Project CSX Competition.

Modelled LTE Downlink system with Rayleigh fading channel, University of Maryland. Spring- 2016

- Developed individually an OFDM based LTE transmitter, Rayleigh fading channel and receiver chain in MATLAB.
- Implemented a transmitter by simulating LTE sub-frame based pilots with QPSK & 16QAM modulated pilot and data, along with cyclic prefix, transmit filters and a receiver with zero-forcing equalizer and filter modules
- Observed advantages of an OFDM system in a fading cellular channel over complex channel equalization techniques.

A Number Plate Recognition Algorithm, VIT University March -- May, 2013

- Implemented individually a number plate recognition algorithm based on correlation of the segmented connected areas and custom built character templates and tested in MATLAB® to have hands-on learning about Digital Image Processing.

An Algorithm for Suppression of Nonstationary Noise in Voice Signals using Kalman filter, VIT Uni. July – October 2012

- Implemented with a fellow student an algorithm for suppression of Nonstationary noise in voice signals using Kalman Filter based Predictor technique and tested on real life voice in MATLAB® to gain deep understanding in Digital Signal Processing.

LEADERSHIP EXPERIENCE

Vice president, IEEE Electron Devices Society-VIT, VIT University, Vellore, India May 2012 – July 2013

- Supervised and budgeted guest lectures by renowned professors in Nano/Quantum electronics and National workshops to bolster awareness on Nano Sciences. Determined chapter's events and advertised to increase chapter's membership by 30%.