Shinde Swapnil Sadashiv
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Research Interests

- Communication Systems

- Signal Processing

- Signal processing for smart grid communications

Education and Work Experience

- **Indian Institute of Technology, Kanpur**

  Project Engineer (Nov. 2015 to Present)
  Project Title : Advanced Communication and Control for the Prevention of Blackouts .
  Supervisor - Dr. Ketan Rajawat (Assistant Professor, IIT Kanpur, Kanpur)

  - **Demand side management in the smart grid**
    The problem of optimal battery usage under real-time pricing scenarios is formulated as a finite horizon optimization problem and solved via an incremental algorithm that is provably optimal in the long run.
    Simulation Tools: Matlab, Real Time Digital Simulator (RTDS) facility

  - **Wide Area State Estimation under Communication Delays and Losses**
    Currently, we are investigating the problem of communication losses and a random delay occurred in measurements from PMU measurement systems (WAMS) and its effect on a Power system state estimation. The central idea of this research is to provide a reliable estimate of the state in real time in the presence of random transmission delays and missing measurement phenomenon
    Simulation Tools: Matlab, Real Time Digital Simulator (RTDS) facility, iPDC (phasor data concentrator)

- **Indian Institute of Information Technology Design & Manufacturing, Kancheepuram (Chennai)**
  Master of Design (eq. to M.Tech) (Communication System) (Jul. 2013 - Jun. 2015) (**GPA- 7.57/10**)
  - **M.Des**. thesis details
    Title: Stability Analysis of Direct-Form Digital Filters in the Presence of Nonlinearities and External Disturbance.(Aug 2014 - Jun. 2015)
    Guide: Dr. Priyanka Kokil (Assistant Professor, IIITD&M Kancheepuram, Chennai)

    Description: We considered the problem of stability analysis of direct-form digital filters in the presence of nonlinearities (limit cycles) and external interferences. While implementing recursive discrete systems in finite wordlength processors using fixed-point arithmetic, nonlinearities are introduced due to the quantization and overflow. The presence of such nonlinearities may cause instability of the designed system. Also, mutual or external interferences between the biquad filters may lead to malfunction as well as destruction phenomenon. In this project, we derived criteria for the realization of direct-form digital filters free of overflow limit cycles with saturation arithmetic and external interference.

- **M.Des Mini-Project**:- Mathematical Modeling of Cellular Network in Campus(February 2014)

  Description: The mini-project, aimed to mathematically model a cellular network for college campus in such a way that all the important areas and high density areas receives sufficient power for cellular system to work.

  Simulation Tools: MATLAB, Radio Mobile

- **Vidya Pratishthan's College of Engineering, Baramati (Pune)**
  *Bachelor of Engineering (B. E.) (Electronics & Telecom. Engineering) Jul 2009 - May 2013 (**Class GPA- 3.2/4**

  - **B.E.** thesis details
    Title-: Vehicle Tracking System Using GSM and GPS
    Guide: Mr. B. H. Deokate (Jul 2012 - May 2013)

    Description: In this project we provide a transmitter-receiver system which can track the moving vehicle and send the message to user regarding the location of that particular vehicle. In this project we used GPS, GSM and Google Map services effectively

Educational Qualifications	Board/Institution	CGPA / %	Year
M.Des (Communication System Design)	Indian Institute of Information Technology, Design & Manufacturing, Kancheepuram	7.57	2013-2015
B.E (Electronics & Telecommunication)	Pune University	57%,(3.2/4) (**First Class**)	2009-2013
HSC (12th)	Maharashtra State Board	74.5% (**Grade I**)	2008-2009
SSC (10th)	Maharashtra State Board	85.23% (**Grade I with Distinction**)	2006-2007

Publications

- Kokil P., Shinde S.S., "A Note on the Induced $l\infty$ Stability of Fixed-Point Digital Filters Without Overflow Oscillations and Instability Due to Finite Wordlength Effects." *Circuits, Systems & Signal Processing Journal*, 1-13 (2016).

- Kokil P., Shinde S.S., "Asymptotic Stability of Fixed-point State-space Digital Filters with Saturation Arithmetic and External Disturbance: An IOSS Approach." *Circuits, Systems & Signal Processing Journal* Vol. 34, No. 12, pp. 3965-3977, (2015).

- Kokil P., Shinde S.S., "An Improved Criterion for Peak-to-peak Realization of Direct-Form Interfered Digital Filters Employing Saturation Nonlinearities." *The International Journal for Computation and Mathematics in Electrical and Electronic Engineering*, Vol. 33, No. 3, pp. 996-1010, (2015).

Teaching Assistantship

- Teaching assistant for B.Tech Electronics Engineering (3rd year) in **Electronics Instrumentation Practice Lab**. (Aug-Dec, 2013).

- Teaching assistant for B.Tech Mechanical Engineering (2nd year) in **Control Engineering Practice Lab**. (Jan-May, 2014).

- Teaching assistant for B.Tech Electronics Engineering (2nd year) in **Applied DSP Practice Lab**. (Aug-Dec, 2014)

- Teaching assistant for B.Tech Electronics Engineering (2nd year) in **Networks and Systems Practice Lab**. (Aug-Dec, 2014)

- Teaching assistant for B.Tech (1st year) in **Measurement and Data Analysis Practice Lab**. (Jan-May, 2015)

- Teaching assistant for M-Des (1st year) in **PCB and Embedded System Design Practice Lab**. (Jan-May, 2015)

Skills

- **Programing Languages**: C/C++, Java, Python

- **Operating Systems**: Windows Xp/Vista/Win7, Linux

- **Software Packages**: MATLAB, SCILAB, Xilinx, AWR, LabView, Multisim, RSCAD, iPDC, OPEN PDC, DSA Tools (basics), OPELRT (Basics)

Distance Learning (Via Coursera and edX)

- **Linear Circuits** a course of study offered by **Georgia Institute of Technology** through Coursera. (Verified Certificate)

- **DC201x: Dynamics and Control** a course of study offered by **UPValenciaX**, an online learning initiative of **Universitat Politècnica de València** through edX. (Honor Code Certificate)

- **Welcome to Game Theory** a course of study offered by **The University of Tokyo** through Coursera. (Verified Certificate)

- **Image and video processing: From Mars to Hollywood with a stop at the hospital** a course of study offered by **Duke University** through Coursera. (Verified Certificate with **Distinction**)

- **Hardware Security** a course of study provided by **University of Maryland** through Coursera. (Verified Certificate with **Distinction**)

- **Usable Security** a course of study provided by **University of Maryland** through Coursera. (Verified Certificate)

- **Game Theory II: Advanced Applications** a course of study provided by **Stanford University** and **The University of British Columbia** through Coursera. (Statement of Accomplishment with **Distinction**)

- **Cryptography I** a course of study provided by **Stanford University** through Coursera. (Statement of Accomplishment)

- **D003x.1: Applications of Linear Algebra Part 1** a course of study offered by **DavidsonX**, an online learning initiative of **Davidson College** through edX. (Honor Code Certificate)

- **Signals and Systems, Part 1** a course of study offered by **IITBombayX**, an online learning initiative of **Indian Institute of Technology Bombay** through edX. (Honor Code Certificate)

- **Solving Complex Problems** a course of study offered by **DelftX**, an online learning initiative of **Delft University of Technology** through edX. (Honor Code Certificate)

- **ISSCCx: ISSCC Previews - Circuit and System Insights** a course of study offered by **IEEEx**, an online learning initiative of **IEEE** through edX. (Honor Code Certificate)

Workshops Attended

- One day UKIERI sponsored workshop on "**Recent Research Trends in Signal Processing and Communication**" held on October 11, 2014 at **Indian Institute of Information Technology, Design and Manufacturing (IIITD&M) Kancheepuram**.

- One day workshop on "**Fiber Interferometric Applications in Communication and Sensors**" held on December 19, 2014 at **Indian Institute of Information Technology, Design and Manufacturing (IIITD&M) Kancheepuram**.

- National workshop on "**Advance Applications of Real Time Digital Simulator in Power Engineering Research and Controller Validation**" held at **Indian Institute of Technology Kanpur** during November 20-21, 2015.

Achievements

- Achieved **IEEE certificate** valid for 7 Professional Development Hours (PDHs) or 7 Continuing Education Units (CEUs) for Circuits and System Course.

Fellowships

- Recipient of **Institute financial assistance**, during post-graduate study program under GATE-Scholarship scheme of Ministry of Human Resource Development (MHRD), Govt. of India

Personal Information

- **Date of Birth**: $29^{th}, October, 1991$

- **Language Proficiency**:

  - Marathi (Mother Tongue) (To write, read & speak)
  - English (Fluent) (To write, read & speak)
  - Hindi (Fluent) (To write, read & speak)

Declaration

- I hereby declare that the information furnished above is true to the best of my knowledge and belief and I bear the responsibility for the correctness of the above mentioned information.

Date
Place   Shinde Swapnil Sadashiv