

SUSHIL SUBRAMANIAN

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EDUCATION:

- **2009-present: University of Southern California, Los Angeles, CA**
PhD. Student in Electrical Engineering
Advisor: Hossein Hashemi
- **August 2016: University of Southern California, Los Angeles, CA**
M.S., Electrical Engineering (GPA: 3.85/4.00)
- **August 2009: Indian Institute of Technology, Kharagpur, India**
B.Tech., Electronics and Electrical Communication Engineering (CGPA: 8.96/10.00)

RESEARCH INTERESTS:

- Frequency Synthesis, Fast-Frequency Hopping, Phase-Locked Loops
- Analog-to-Digital Converters, Digital-to-Analog Converters, Quantization Techniques
- Analog and Mixed-Signal Integrated Circuit Design

PUBLICATIONS:

Journal Papers:

- S. Subramanian and H. Hashemi, "Discrete-Time Filtering and Equalization in Analog-to-Digital Converters Designed for Spectrally-Structured Signals," *IEEE Transactions on Circuits and Systems – I: Regular Papers*, *submitted*.
- S. Subramanian and H. Hashemi, "Reconfigurable Quantization of Oversampled Signals under Discrete-Time Filtering," *IEEE Transactions on Circuits and Systems – I: Regular Papers*, November 2014.

Conference Proceedings:

- S. Subramanian and H. Hashemi, "A 10 MHz Bandwidth Quantizing I/Q Receiver with Embedded 3rd Order Channel Selection Filtering and 2 pJ/lvl Energy Efficiency," *under preparation*.
- S. Subramanian and H. Hashemi, "A 200 MSPS Reconfigurable ADC with Adjacent Channel Narrowband Blocker Resiliency," *IEEE Radio Frequency Integrated Circuits Symposium*, May 2016.
- S. Subramanian and H. Hashemi, "An 800 MSPS DDFS and Integrated Nonlinear DAC-Filter with <15 ns Instantaneous Hopping Time," *IEEE International Microwave Symposium*, June 2013 (**Student Paper Award, 2nd Place**).
- S. Subramanian and P. Chandra, "An Incentive based Peer-to-peer Protocol for Anonymous Collaborative Mobile Streaming," *IEEE Wireless Communications and Networking Conference*, April 2009.
- S. Subramanian, K. Kumar, B.P. Mishra, A. Banerjee and D. Bhattacharya, "Fuzzy Logic based Content Protection for Image Resizing by Seam carving," *IEEE Conference on Soft Computing in Industrial Applications*, June 2008 (**HP Innovate Best Student Paper Award**).

Theses:

- S. Subramanian, “Mixed-Signal Alternatives for Analog Functions in Software-Defined Radio Receivers,” *University of Southern California*, March 2017.
- S. Subramanian, “Behavioral Time Domain Modeling of RF Phase-Locked Loops,” *Indian Institute of Technology, Kharagpur*, May 2009 (**Best Undergraduate Thesis Award**).

TEACHING AND ACADEMIC SERVICE:

- Teaching Assistant, *University of Southern California*
EE632 – Integrated Communication Systems, Spring 2016
- Organizer and Host, *University of Southern California*
Integrated Systems Seminar Series, Spring 2014
- Teaching Assistant, *University of Southern California*
EE448L – Communication Electronics, Fall 2013

WORK EXPERIENCE:

- **Interim Engineering Intern** (*May-August 2015*)
Qualcomm Atheros, Qualcomm, Irvine, CA
Supervisor: Babak Vakili-Amini
Low-power oscillator and power management circuit design.
- **Graduate Research Assistant** (*2009-present*)
Department of Electrical Engineering, University of Southern California, Los Angeles, CA
Advisor: Hossein Hashemi
Design of scalable and reconfigurable mixed-signal systems for fast-hopping frequency synthesizers and blocker-resilient receivers.
- **Undergraduate Research Intern** (*May-July 2008*)
Communication Sciences Institute, University of Southern California, Los Angeles, CA
Advisor: Urbashi Mitra
Proposed and verified algorithms based on compressed sensing that estimate sparse underwater acoustic channels. Results showed improvements in BER while reducing computational complexity.
- **Undergraduate Research Intern** (*May-July 2007*)
Hewlett-Packard Labs India, Hewlett-Packard, Bangalore, India
Supervisor: Prabhul Chandra
Proposed and verified a peer-to-peer protocol that uses incentives to enhance fair service in mobile ad hoc networks. Results showed improvements in download costs, cost variation and network settling time.

PUBLICATION AWARDS:

- **IEEE IMS Student Paper Award, 2nd Place** – for the paper “An 800 MSPS DDFS and Integrated Nonlinear DAC-Filter with <15 ns Instantaneous Hopping Time” (*2013*)
 - **Best Undergraduate Thesis Award** – 55th Convocation, IIT Kharagpur, for the thesis “Behavioral Time Domain Modeling of RF Phase-Locked Loops” (*2009*)
 - **Hewlett-Packard Innovate Best Student Paper Award** – for the paper “Fuzzy Logic based Content Protection for Image Resizing by Seam Carving” (*2008*)
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