

Salman Khaleghi

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EDUCATION

- **2007 – Present** **University of Southern California** **Los Angeles, U.S.**
Ph.D., Electrical Engineering - Communication Systems
Minor, Biomedical Engineering
 - GPA: 3.86 / 4.0
 - Advisor: **Prof. Alan E. Willner**.
- **2011** **University of Southern California** **Los Angeles, U.S.**
M.Sc., Electrical Engineering
 - GPA: 4.00 / 4.00
- **2003 – 2007** **Sharif University of Technology** **Tehran, Iran**
B.Sc., Electrical Engineering - Communications
 - GPA: 17.69 / 20
 - Thesis title: “*Analysis of Components and Design of a Prototype Dense Wavelength Division Multiplexed (DWDM) Network*”, under supervision of **Prof. Jawad A. Salehi**.

HONORS AND AWARDS

- Dean’s Fellowship Award for Ph.D. from the University of Southern California (USC). 2007
- Member of Iran’s National Elites Foundation 2007
- Graduate Teaching Fellowship Award for Ph.D. form Boston University. 2007
- University of Victoria Fellowship (Master’s level) Award. 2007
- Ranked **48th** out of **400,000** participants of the nationwide university entrance exam. 2003
- Recipient of an award for high rank in nationwide university entrance exam from the *Minister of Science, Research and Technology*. 2003

RESEARCH INTERESTS

- All-optical signal processing based on nonlinearities
- SOA-based signal processing
- Advanced modulation formats for optical communications
- Raman amplification
- Optical code division multiple access systems (O-CDMA)
- Optical data communication networks
- Digital signal processing

ACADEMIC WORK EXPERIENCE

- **Research Assistant** *Fall 2007 - Present*
for **Prof. Alan E. Willner**
Optical Communications Laboratory (OCLab)
University of Southern California, Los Angeles, CA
- **Research Assistant** *Spring 2006 - Fall 2007*
for **Prof. Jawad A. Salehi**
Optical Networks Research Laboratory (ONRL)
Sharif University of Technology, Tehran, Iran
- **Teaching Assistant** *Fall 2011*
for **Prof. A. Zahid**, Course: *EE-450 – Introduction to Computer Networks*
Student Evaluation: 4.10/5.00
University of Southern California, Los Angeles, CA
- **Teaching Assistant** *Spring 2011*
for **Prof. K. M. Chugg**, Course: *EE-568 – Error Correcting Codes*
Student Evaluation: 4.80/5.00
University of Southern California, Los Angeles, CA
- **Teaching Assistant** *Fall 2010*
for **Prof. K. M. Chugg**, Course: *EE-564 – Communication Theory*
Student Evaluation: 4.11/5.00
University of Southern California, Los Angeles, CA
- **Teaching Assistant** *Spring 2010*
for **Prof. R. A. Scholtz**, Course: *EE-562b – Random Processes in Engineering II*
Student Evaluation: 4.33/5.00
University of Southern California, Los Angeles, CA
- **Teaching Assistant** *Fall 2009*
for **Prof. A. M. Molisch**, Course: *EE-564 – Communication Theory*
Student Evaluation: 4.79/5.00
University of Southern California, Los Angeles, CA
- **Teaching Assistant** *Spring 2009*
for **Prof. M. Shiva**, Course: *EE-441 – Applied Linear Algebra for Engineering*
Student Evaluation: 3.93/5.00
University of Southern California, Los Angeles, CA
- **Teaching Assistant** *Fall 2008*
for **Prof. K. M. Chugg**, Course: *EE-464 – Probability Theory for Engineers*
Student Evaluation: 4.22/5.00
University of Southern California, Los Angeles, CA
- **Teaching Assistant** *Fall 2006*
for **Prof. M. B. Shamsollahi**, Course: *25-051 – Signals and Systems*
Sharif University of Technology, Tehran, Iran

RELATED COURSE WORK

Random Processes in Engineering I, Random Processes in Engineering II, Communication Theory, Mobile Communications, Introduction to Computer Networks, Antennas, Microwave Components, Optical Fiber Communication Systems, Optics, Nonlinear Optics, Optical Information Processing, Advanced Biomedical Imaging, Ultrasonic Imaging, Antennas, Digital Signal Processing

PROVISIONAL PATENTS

- Mohammad Reza Chitgarha, **Salman Khaleghi**, Alan E. Willner, and Omar F. Yilmaz, “*Optical Tunable Tapped-Delay-Lines using Wavelength Conversion and Chromatic Dispersion Based Delays*”, U.S. Serial Number 61/450,080

PUBLICATIONS

- Omer F. Yilmaz, **Salman Khaleghi**, Mohammad Reza Chitgarha, Moshe Tur, and Alan E. Willner, “*Simultaneous Multiple Pattern Correlation with μ s Reconfiguration Time*”, Proceedings of the *IEEE/OSA Conference on Optical Fiber Communications (OFC)*, Los Angeles, CA, March 2012.
- Mohammad Reza Chitgarha, **Salman Khaleghi**, Omer F. Yilmaz, Moshe Tur, Michael W. Haney, and Alan E. Willner, “*Coherent Multi-Pattern Correlator and All-Optical Equalizer Enabling Simultaneous Equalization, Wavelength Conversion and Multicasting*”, Proceedings of the *IEEE/OSA Conference on Optical Fiber Communications (OFC)*, Los Angeles, CA, March 2012.
- **Salman Khaleghi**, Mohammad Reza Chitgarha, Omer F. Yilmaz, Hao Huang, Moshe Tur, Michael W. Haney, and Alan E. Willner, “*Universal QAM Encoder/Converter using Fully Tunable Complex-Coefficient Optical Tapped-Delay Line*”, Proceedings of the *IEEE/OSA Conference on Optical Fiber Communications (OFC)*, OTh4H.6, Los Angeles, CA, March 2012.
- Omer F. Yilmaz, Lior Yaron, **Salman Khaleghi**, Mohammad R. Chitgarha, Moshe Tur, and Alan E. Willner, “*True Time Delays using Conversion/Dispersion with Flat Magnitude Response for Wideband Analog RF Signals*”, Mo.1.A.6, Proceedings of the European Conference on Optical Communication (ECOC), We.10.P1.48, Geneva, Switzerland, September 2011.
- Mohammad Reza Chitgarha, **Salman Khaleghi**, Omar F. Yilmaz, Jeng-Yuan Yang, and Alan E. Willner, “*Bit Depth and Sample Rate Tunable Digital to Analog Converter using Conversion/Dispersion Based Delays*”, Proceedings of the European Conference on Optical Communication (ECOC), Geneva, Switzerland, September 2011.
- **Salman Khaleghi**, Mohammad Reza Chitgarha, Omer F. Yilmaz, Alan E. Willner and Michael W. Haney, “*Experimental Performance of a Continuously Tunable 40-GHz Complex Weight Optical FIR Filter using Wavelength Conversion and Chromatic Dispersion*”, Proceedings of the *IEEE/OSA Conference on Lasers and Electro-Optics (CLEO)*, CTuW4, Maryland, MA, May 2011.
- Omer F. Yilmaz, Jian Wang, **Salman Khaleghi**, Xue Wang, Scott R. Nuccio, Xiaxia Wu, and Alan E. Willner, “*Preconversion Phase Modulation of Input Differential Phase-Shift-Keying Signals for Wavelength Conversion and Multicasting Applications using Phase-Modulated Pumps*”, *OSA Optics Letters*, 36, 731-733 (2011).
- **Salman Khaleghi**, Omer F. Yilmaz, Mohammad Reza Chitgarha, Irfan M. Fazal, and Alan E. Willner, “*80-Gbit/s DQPSK Optical Tapped-Delay-Line Equalization using Finely Tunable Delays, Phases and Amplitudes*”, Proceedings of the *IEEE/OSA Conference on Optical Fiber Communications (OFC)*, OThN4, Los Angeles, CA, March 2011.
- Mohammad Reza Chitgarha, **Salman Khaleghi**, Omar F. Yilmaz, Jeng-Yuan Yang, and Alan E. Willner, “*Demonstration of Baud-Rate-Variable and Channel-Spacing-Tunable Demultiplexing of 10-40-Gbaud OFDM Subcarriers using a Multi-Tap Optical DFT*”, Proceedings of the *IEEE/OSA Conference on Optical Fiber Communications (OFC)*, OWG3, Los Angeles, CA, March 2011.
- Omer F. Yilmaz, **Salman Khaleghi**, Mohammad R. Chitgarha, Scott R. Nuccio, and Alan E. Willner, “*Demonstration of 28-40-Gbaud, OOK/BPSK/QPSK Data-Transparent Optical Correlation with Control/Tunability over Time Delays, Phases and Number of Taps*”, Proceedings of the *IEEE/OSA Conference on Optical Fiber Communications (OFC)*, OThN1, Los Angeles, CA, March 2011.
- Omer F. Yilmaz, **Salman Khaleghi**, Nisar Ahmed, Scott R. Nuccio, Irfan M. Fazal, Xiaoxia Wu, Alan E. Willner, “*Reconfigurable and Finely Tunable Optical Tapped Delay Line to Achieve 40 Gb/s Equalization and Correlation using Conversion/Dispersion Based Delays*”, Proceedings of the European Conference on Optical Communication (ECOC), Turino, Italy, September 2010.
- Irfan M. Fazal, **Salman Khaleghi**, Omer F. Yilmaz, Jeng-Yuan Yang, Lin Zhang, Anajali Agarwal, Ron Menendez, Janet Jackel, Alan E. Willner, “*Optimizing RZ 40-Gbit/s Fiber Transmission System Performance when Utilizing SOA-Based DXPM Wavelength Converters*”, Proceedings of the *IEEE/OSA Conference on Lasers and Electro-Optics (CLEO)*, JThE58, San Jose, CA, May 2010.
- **Salman Khaleghi**, Irfan M. Fazal, Lin Zhang, Janet Jackel, Anjali Agarwal, Ronald C. Menendez, and Alan E. Willner, “*System Design Guidelines When Utilizing Chirp-Inducing Wavelength Converters in a Fiber Transmission System*”, Proceedings of the *IEEE/OSA Conference on Lasers and Electro-Optics (CLEO)*, JThE55, San Jose, CA, May 2010.

- **Salman Khaleghi**, Sina Khaleghi, and Kambiz Jamshidi, “*Performance Analysis of a Spectrally Phase-Encoded Optical Code Division Multiple Access Packet Network*”, *IEEE/OSA Journal of Optical Communications and Networking*, 1, 213-221 (2009).
- Scott R. Nuccio, Omer F. Yilmaz, **Salman Khaleghi**, Xiaoxia Wu, Louis Christen, Irfan Fazal, and Alan E. Willner, “*Tunable 503 ns optical delay of 40 Gbit/s RZ-OOK and RZ-DPSK using a wavelength scheme for phase conjugation to reduce residual dispersion and increase delay*,” *OSA Optics Letters*, 34, 1903-1905 (2009).
- Omer F. Yilmaz, Scott R. Nuccio, **Salman Khaleghi**, Jeng-Yuan Yang, Louis Christen, Alan E. Willner, “*Optical Multiplexing of Two 21.5 Gb/s DPSK Signals into a Single 43 Gb/s DQPSK Channel with Simultaneous 7-Fold Multicasting in a Single PPLN Waveguide*”, Proceedings of the *IEEE/OSA Conference on Optical Fiber Communications (OFC), OThM4*, San Diego, CA, March 2009
- Scott R. Nuccio, Omer F. Yilmaz, **Salman Khaleghi**, Louis Christen, Irfan Fazal, Alan E. Willner, “*503 ns, Tunable Optical Delay of 40 Gb/s RZ-OOK and RZ-DPSK Using Additional l-Conversion for Increased Delay and Reduced Residual Dispersion*”, Proceedings of the the *IEEE/OSA Conference on Optical Fiber Communications (OFC), OThM7*, San Diego, CA, March 2009
- Scott R. Nuccio, Louis Christen, Xiaoxia Wu, **Salman Khaleghi**, Omer F. Yilmaz, Alan E. Willner, Yasuhiro Koike, “*Transmission of 40Gb/s DPSK and OOK at 1.55 μ m Through 100m of Plastic Optical Fiber*”, Proceedings of the European Conference on Optical Communication (ECOC), Brussels, Belgium, October 2008.
- Sina Khaleghi, **Salman Khaleghi**, and Kambiz Jamshidi, “*Power Performance Analysis of Spectrally Phase-Encoded Optical CDMA Packet Networks*”, Proceedings of the *IEEE International Conference on Signal Processing and Communications (ICSPC)*, Dubai, United Arab Emirates, November 2007.
- Sina Khaleghi, **Salman Khaleghi**, and Kambiz Jamshidi, “*Analysis of Throughput and Delay in a Spectrally Phase-Encoded Optical CDMA Packet Network*”, Proceedings of the 4th *IEEE International Conference on Wireless and Optical Communications Networks (WOCN)*, Singapore, July 2007.

COMPUTER AND PROGRAMMING SKILLS

- **Operating Systems:** MS Windows; Mac
- **Programming:** MATLAB; C/C++; Verilog HDL; Assembly 8051 and 80x86
- **Engineering Softwares:** VPIphotonics; OptSim; OrCAD; Quartus II
- **Other Softwares:** L^AT_EX; Microsoft Office; Photoshop; Corel Draw

MEMBERSHIPS

- Student Member, *IEEE* 2006 - Present
- Student Member, Optical Society of America, *OSA* 2011 - Present
- Member, *IEEE* Communications Society. 2006 - Present
- Member, *IEEE* Photonics Society. 2006 - Present

EXTRACURRICULAR ACTIVITIES

- Senator of Electrical Engineering Department, Viterbi Graduate Students Association (VGSA), University of Southern California. 2010
- Member, “*Natural Sciences, Math, and Engineering Subcommittee*”, Provost’s University Committee on Curriculum, University of Southern California. 2009 - 2010
- Vice President, Iranian Graduate Students Association (IGSA), University of Southern California. 2008 - 2009
- Member, Resana (student’s extracurricular activities association of electrical engineering department), Sharif University of Technology. 2004 - 2007
- Chair, Advertising Committee, “*Data Communication and Control in Oil Industry*” Conference, Sharif University of Technology. 2005
- Member, Advertising Committee, “*Broadband Communications and Digital Video Broadcasting*” Conference, Sharif University of Technology. 2004

HOBBIES

- Swimming, Ping-Pong, Playing Tar (a Persian musical instrument)