

Stanford



Shirin Pourashraf

Postdoctoral Scholar, Molecular Imaging Program at Stanford

Bio

BIO

Shirin Pourashraf is from Darreh Shahr, Ilam, Iran. She received the M.S. degree from the Department of Electrical and Computer Engineering, Isfahan University of Technology, Isfahan, Iran, in 2011, and the Ph.D. degree from New Mexico State University, Las Cruces, NM, USA, in 2018. Her field of studies was the design and test of low-voltage/low-power and high-performance analog/digital/mixed-signal building blocks. She was the recipient of Outstanding Teaching Assistant Award from Klipsch School of Electrical and Computer Engineering, New Mexico State University, in 2017 and Outstanding Graduate Assistantship Award from Graduate School of New Mexico State University in 2018.

Shirin Pourashraf is currently a Postdoctoral Fellow Scholar in the Department of Radiology, Molecular Imaging Instrumentation Laboratory (MIIL) focused on building a 100 ps CTR pre-clinical partial ring TOF-PET scanner; specifically, by exploring, and designing high speed low noise/jitter instrumentation, and data acquisition electronics. She is also designing an scalable side-readout electronic to detect Cherenkov radiation and improve TOF resolution in PET detectors using BGO crystals.

HONORS AND AWARDS

- 2022 Valentin T. Jordanov Radiation Instrumentation Travel Grant, 2022 IEEE Nuclear Science, Medical Imaging and Room Temperature Semiconductor Detector Conference (September 2022)
- 2022 IEEE NSS/MIC/RTSD Trainee Grant, Milano, Italy, IEEE 29th Nuclear Science Symposium & Medical Imaging Conference (July 2022)
- Stanford Bio-X Travel Award, Bio-X at Stanford University (July 2022)
- Stanford Cancer Imaging Training (SCIT) Fellowship; NIH T32 Award, NIH (National Institute of Health): National Cancer Institute (Feb. 2022)
- 2021 IEEE NSS/MIC/RTSD Trainee Grant, Japan, IEEE 28th Nuclear Science Symposium & Medical Imaging Conference (2021)
- 2020 IEEE NSS/MIC/RTSD Trainee Grant, Boston, Massachusetts, United States., IEEE 27th Nuclear Science Symposium & Medical Imaging Conference (2020)
- Research grant; 1R01EB02512501, NIH (National Institution of Health) (2019-present)
- Research grant; 5R01CA21466903, NIH (National Institution of Health) (2019-present)
- 2019 IEEE NSS/MIC/RTSD Trainee Grant, Manchester, United Kingdom., IEEE Nuclear Science Symposium & Medical Imaging Conference (2019)
- Granted Xilinx Kintex-7 KC705 FPGA Evaluation Kit and associated licenses., Xilinx University Donation Program (2019)
- Outstanding Graduate Assistantship Award, Graduate School, New Mexico State University (2018)
- Outstanding Teaching Assistant Award, Klipsch School of Electrical and Computer Engineering Department, New Mexico State University (2017)
- Talented Students Association Award, Shahid Chamran University of Ahvaz (2002)

PROFESSIONAL EDUCATION

- Ph.D., New Mexico State University, NM, USA , Electrical Engineering/Mixed-Signal Integrated Circuit (IC) Design (2018)
- Master of Science, Isfahan University Of Technology (IUT) , Electrical Engineering/Microelectronics (2011)

- Bachelor of Science, Shahid Chamran University of Ahvaz , Electrical Engineering (2007)

STANFORD ADVISORS

- Craig Levin, Postdoctoral Faculty Sponsor

LINKS

- Molecular Imaging Instrumentation Laboratory: <http://med.stanford.edu/miil.html>
- Stanford Cancer Imaging Training (SCIT) Program: <https://med.stanford.edu/scitprogram/trainees.html>
- LinkedIn: <https://www.linkedin.com/in/shirin-pourashraf-802a1750/>
- Google Scholar: https://scholar.google.com/citations?hl=en&user=p9rILLAAAAAJ&view_op=list_works&sortby=pubdate
- ResearchGate: https://www.researchgate.net/profile/Shirin_Pourasharf/research
- Google+: <https://plus.google.com/u/0/109040264139130097165?tab=iX>

Research & Scholarship

CURRENT RESEARCH AND SCHOLARLY INTERESTS

My working is focused on building a 100 ps CTR pre-clinical partial ring TOF-PET scanner; specifically, by exploring, and designing high speed low noise/jitter instrumentation, and data acquisition.

I am also designing an scalable side-readout electronic to detect Cherenkov radiation and improve TOF resolution in PET detectors using BGO crystals.

LAB AFFILIATIONS

- Craig Levin, Molecular Imaging and Instrumentation Laboratory (MIIIL) (1/7/2019)

Publications

PUBLICATIONS

- **Investigation of Electronic Signal Processing Chains for a Prototype TOF-PET System with 100 ps Coincidence Time Resolution** *IEEE Transactions on Radiation and Plasma Medical Sciences*
Pourashraf, S., Gonzalez-Montoro, A., Lee, M., Cates, J. W., Won, J. Y., Lee, J. S., Levin, C. S.
2022; 6 (6): 690 - 696
- **Scalable electronic readout design for a 100 ps coincidence time resolution TOF-PET system.** *Physics in medicine and biology*
Pourashraf, S. n., Gonzalez-Montoro, A. n., Won, J. Y., Lee, M. S., Cates, J. W., Zhao, Z. n., Lee, J. S., Levin, C. S.
2021
- **Cherenkov Radiation-Based Coincidence Time Resolution Measurements in BGO Scintillators** *FRONTIERS IN PHYSICS*
Gonzalez-Montoro, A., Pourashraf, S., Cates, J. W., Levin, C. S.
2022; 10
- **Study of optical reflectors for a 100ps coincidence time resolution TOF-PET detector design.** *Biomedical physics & engineering express*
Gonzalez-Montoro, A., Pourashraf, S., Lee, M. S., Cates, J. W., Levin, C. S.
2021
- **Evolution of PET Detectors and Event Positioning Algorithms Using Monolithic Scintillation Crystals** *IEEE TRANSACTIONS ON RADIATION AND PLASMA MEDICAL SCIENCES*
Gonzalez-Montoro, A., Gonzalez, A. J., Pourashraf, S., Miyaoka, R. S., Bruyndonckx, P., Chinn, G., Pierce, L. A., Levin, C. S.
2021; 5 (3): 282-305
- **Studies of a Scalable Electronic Readout Design for a 100 ps Coincidence Time Resolution TOF-PET System**
Pourashraf, S., Won, J. Y., Gonzalez-Montoro, A., Lee, M., Cates, J. W., Zhao, Z., Lee, J. S., Levin, C. S.
IEEE Nuclear Science Symposium & Medical Imaging Conference (IEEE NSS-MIC), Boston, Massachusetts, United States.2020

- **Study of Optical Reflectors Used in Scintillation Detectors that Achieve 100 ps Coincidence Time Resolution for TOF-PET**
Gonzalez-Montoro, A., Pourashraf, S., Lee, M., Cates, J. W., Levin, C. S.
IEEE Nuclear Science Symposium & Medical Imaging Conference (IEEE NSS-MIC).2020
- **Investigation of Analog and Digital Signal Processing Chains for a Prototype TOF-PET System with 100 ps Coincidence Time Resolution**
Pourashraf, S., Gonzalez-Montoro, A., Lee, M., Cates, J. W., Won, J. Y., Zhao, Z., Lee, J. S., Levin, C. S.
IEEE Nuclear Science Symposium & Medical Imaging Conference (IEEE NSS-MIC).2020
- **Gain and Bandwidth Enhanced Class-AB OTAs**
Pourashraf, S., Ramirez-Angulo, J., Roman-Loera, A., Gangineni, M., IEEE
IEEE.2019: 778–81
- **Pulse Shape Discrimination and Energy Measurement in Phoswich Detectors Using Gated-Integrator Circuit**
Pourashraf, S., Cates, J. W., Lee, M., Levin, C. S., IEEE
IEEE.2019
- **± 0.25 V Low-voltage Class-AB CMOS Capacitor Multiplier and Precision Rectifiers.** *IEEE Transaction on Very Large Scale Integrated Systems (TVLSI)*
Pourashraf, S., Ramirez-Angulo, J., Hinojo Montero, J., González-Carvajal, R., Lopez-Martin, A. J.
2018
- **Ultra Low Voltage Gate Driven Bandpass PGA with Constant Bandwidth**
Pourashraf, S., Ramirez-Angulo, J., Diaz-Sanchez, A., IEEE
IEEE.2018
- **Continuous and Discrete Time Low Voltage Analog Circuits in 16 nm CMOS Technology.**
Pourashraf, S., Ramirez-Angulo, J., Díaz-Armendariz, A.
2018 IEEE International Symposium on Circuits and Systems (ISCAS).2018
- **An Amplified Offset Compensation Scheme and its Application in a Track and Hold Circuit.** *IEEE Transactions on Circuits and Systems II (TCAS-II)*
Pourashraf, S., Ramirez-Angulo, J., Cabrera-Galicia, A. R., Lopez-Martin, A. J., González-Carvajal, R.
2018; 65 (4): 416 - 420
- **An Op-amp Approach for Bandpass VGAs with Constant Bandwidth.** *IEEE Transactions on Circuits and Systems II (TCAS-II)*
Pourashraf, S., Ramirez-Angulo, J., Algueta-Miguel, J., Lopez-Martin, A. J., González-Carvajal, R.
2018; 65 (9): 1144 - 1148
- **A Highly Efficient Composite Class-AB-AB Miller Op-amp with High Gain and Stable from 15 pF up to Very Large Capacitive Loads.** *IEEE Transaction on Very Large Scale Integrated Systems (TVLSI)*
Pourashraf, S., Ramirez-Angulo, J., Lopez-Martin, A. J., González-Carvajal, R.
2018; 26 (10): 2061 - 2072
- **± 0.18 V Supply Gate Driven PGA with 0.7 Hz to 2 kHz Constant Bandwidth and 0.15 μ W Power Dissipation.** *International Journal of Circuit Theory and Application (IJCTA)*
Pourashraf, S., Ramirez-Angulo, J., Lopez#Martin, A. J., González-Carvajal, R., Díaz#Sánchez, A.
2017; 46 (2): 272-279
- **Offset compensation in a track and hold circuit.**
Pourashraf, S., Ramirez-Angulo, J., Cabrera-Galicia, A. R., Lopez-Martin, A. J., González-Carvajal, R.
2017 IEEE 60th International Midwest Symposium on Circuits and Systems (MWSCAS).2017
- **A super class-AB OTA with high output current and no open loop gain degradation.**
Pourashraf, S., Ramirez-Angulo, J., Lopez-Martin, A. J., González-Carvajal, R.
2017 IEEE 60th International Midwest Symposium on Circuits and Systems (MWSCAS).2017
- **Super Class-AB OTA without Open Loop Gain Degradation Based on Dynamic Cascode Biasing.** *International Journal of Circuit Theory and Application (IJCTA)*
Pourashraf, S., Ramirez-Angulo, J., Lopez-Martin, A. J., González-Carvajal, R.
2017; 45 (5): 2111-2118
- **High current efficiency class-AB OTA with high open loop gain and enhanced bandwidth.** *IEICE Letters, Electronics Express*

Pourashraf, S., Ramirez-Angulo, J., Roman-Loera, A., Lopez-Martin, A. J., Diaz-Sanchez, A., González-Carvajal, R.
2017; 14 (17): 20170719

- **Implementation of a Low Power 16-bit Radix-4 Pipelined SRT Divider Using a Modified Data Driven Dynamic Logic (D3L) Structure.** *Microelectronics Journal*

Pourashraf, S., Sayedi, S.
2013; 44 (12): 1165-1174

- **A low power D3L 16-bit radix- 4 pipelined SRT divider.**

Pourashraf, S., Sayedi, S.
2012 25th IEEE Canadian Conference on Electrical and Computer Engineering (CCECE).2012

- **A novel 4#2 compressor for high speed and low power applications.**

Pourashraf, S., Sayedi, M.
2010 18th IEEE Iranian Conference on Electrical Engineering.2010