

JOSE L. AGRAZ, PHD

Wallingford, PA 19086

jose@agraz.email
www.joseagraz.com
Google Scholar Link

Education

University of Pennsylvania	Post-Doc	Cloud/HPC Data Analysis	April 2025
UCLA/Northwestern University	Ph.D.	Biomedical Engineering	Sept 2013
Pennsylvania State University	MS	Electrical Engineering	Sept 2005
University of California, San Diego	Eng Cert	CDMA	Sept 2002
San Diego State University	BS	Electrical Engineering	Sept 2002

Work Experience

Lead Researcher AI Consultant

April 2026 - Present

University of Oklahoma

[Read More](#)

Applied AI Technical Lead. Supporting research teams in applying AI across multidisciplinary projects. Contributed to AI adoption through research computing, technical consulting, and cyberinfrastructure. Helped researchers leverage AI methods, tools, and infrastructure more effectively to advance data intensive research, innovation, and collaboration across the university and the state of Oklahoma.

Postdoctoral Fellow

2020-22 & 2023-25

Perelman School of Medicine, University of Pennsylvania

[Read More](#)

Cloud Big Data Technical lead: Enhancing understanding of diabetes-related kidney conditions by using an ETL process alongside integrated multi-omics, spatial transcriptomics, and imaging analysis. Project funded by a \$42K grant from The National Artificial Intelligence Research Resource (NAIRR) Pilot. [Read More](#)

Cloud Big Data Technical lead: Big data analysis of gene mutation for kidney disease and the loss of Y chromosome research (nVidia Rapids Single-Cell) [Read More](#)

Large Language Model: Scientific Literacy Project. Optimized Large Language Model (LLM) prompts using Python DSPy, CoT, and RAG to enhance scientific writing for non-native speakers and streamline it for native speakers.

-Leadership: Directed a 40 volunteer team.

-Dataset: Created and pre-processed using 1200 abstracts from STEM fields in Semantic Scholar.

-Metrics: Developed metrics using samples of 20 most successful scientific authors.

Cloud Big Data Technical lead. Microsoft Azure Breast Cancer histology whole-slide-image color normalization standardization. Project funded through a \$10K grant by CloudBank and Internet2

HPC Big Data Technical lead: Optimized minimization of deep learning data domain shift in glioblastoma whole-slide-images through color normalization. Utilize novel optimization techniques to decrease color diversity while maintaining tissue structure intact. This technique is a step forward to increasing accuracy in Deep Learning diagnosis and treatment quantification of disease. [Read More](#)

HPC Big Data Technical lead: Covid-19 histology whole-slide-image color normalization standardization. Project funded through a \$30K grant by Intel Corp.

HPC Big Data Technical lead: Heart Transplant Rejection Patient Stratification. Utilized Inform Bioscience biomarkers Analysis for the quantification of cell infiltration in heart tissue, as a means for heart transplant rejection quantification. This quantification will aid in the improvement of quality of life of Heart Transplant patients.

Corporate Consultant

May 2022 - April 2023

Self Employed

[Read More](#)

Business & Technical Lead. Microsoft Azure Breast Cancer histology whole-slide-image color normalization standardization. Project funded through a grant by Internet2 CLASS and Microsoft Azure. [Read More](#) and [Read More](#)

Technical Lead. Primary focus in the quantification of physiological phenomena, driving projects in High Performance Computing (HPC) Big Data analysis and hardware/software prototyping

Product Design Engineer

Apr 2016 - March 2020

Intel Corp

Business and Technical lead: Precognition of Falls in the Elderly wearable project, internet of things (IOT). The devices aimed to open a \$4.2 Billion elderly market to Intel by 2021, with 16.9 Million recurring customers in the developed world

Tech Talks Organizer. Organized technical discussion from speakers from all walks of life around Intel corp.

Technical lead: Hydrophone base, early alert, drowning detection and assistance embedded system project. Project was estimated to bring 60k per system, while preventing 2.6K children drowning injuries, with a cost reduction in healthcare costs in excess of \$150K each

Validation Champion. Tested multiple CPU types, identifying failure risks by pushing products to performance limits and capturing true performance boundaries.

Agraz Research

Sept 2013 - Apr 2016

Self Employed engineering consultant

[Read](#)

[More](#) and [Read More](#)

Project lead: Developed LabView (National Instruments) Test Platform Automation for passive RF filter testing. Integrated Microwave inc. Automation software increase throughput 10-fold, increasing revenue at a minimal expense. [Read More](#)

Project lead: Matlab Musical Sonification of three-Dimensional Data. Resulting software increased student's focus and material retention, raising student's GPAs. [Read More](#)

Project lead: Bitcoin mining. Developed Bitcoin Pool Mining System harvesting at 2013 peak \$900/day.

Project lead: Xbox Kinect motion tracking. LabView software development for motion tracking and motion music modulation. [Read More](#)

Project lead: Interferometer based, ultra sensitive optical microphone and USB portable recording devices for non-invasive listening applications. [Read More](#)

Project lead: Blackjack Lucky Streaks: Statistical Analysis of streaks and progressing betting in Blackjack. [Read More](#)

Project lead: Skin Blood Flow Obstruction Force Measuring Device For Near Infrared Spectroscopy Optical Probes. Calibrated force sensor measuring device for deep muscle oxygen concentration measurement applications.

Project lead: Electronic Race Alternator (Racemate). Microcontroller controlled racing permanent magnet alternator for currents beyond 32 amps. [Read More](#)

Project lead: Labview (National Instruments) Virtual Instrument Drive For T/C Simulator Calibrators. Software driver for 1120 T/C Simulator Calibrators. [Read More](#)

Project lead: Autocad Interactive Drawing-Data Base Program. Lisp data base for SCADA system at the INEL. This program is a set of IISP files running on the AutoCAD enviroment, consisting of; substation drawings linked to a main data base holding information for every device. [Read More](#)

Project lead: HVDC Converter Station Simulator. LabView (National Instruments) program with a GUI used to simulate contingencies and unstable conditions in a HVDC converter. [Read More](#)

Project lead: Pilates rehabilitation tracker. Distance, Velocity, and Acceleration tracking using PIC microcontrollers for elderly rehabilitation tracking using Pilates rehabilitation machines. [Read More](#)

Research Assistant

Sept 2008 - Aug 2013

Northwestern University/Cedars Sinai Medical Center/UCLA

[Read More](#)

Project lead: Developed Magnetic Resonance Imaging (MRI) Ad Hoc hyperpolarization Instrument for the imaging of Cancer at the molecular level. Three publications: [Read More](#), [Read More](#), [Read More](#). One abstract: [Read More](#). One patent: [Read More](#)

RF Electronic Technician

Dec 2004 - Apr 2008

Chugach Corp, Air Force Space Command Civilian Sub-Contractor, Chula Vista, CA

Technician: Maintained and repaired electrical systems hardware for the detection and tracking of satellites. Two publications: [Read More](#) and [Read More](#). Tracking John Glenn in Space: [Read More](#)

Assisting Engineer: DSP of space surveillance targets and IF to audio band downconverter. RF to audio band converter of Air Force Space Surveillance early detection system. An economic backup system for the Air Force Space Surveillance San Diego Field Station. [Read More](#)

Research Assistant

Dec 2002 - Apr 2004

Pennsylvania State University

[Read More](#)

Project lead: Developed miniature non-moving parts piezoelectric material motor for mobile phone camera lens focus and fiber optic alignment applications. Two publications: [Read More](#), [Read More](#)

Publications

- J. L. Agraz, "Advances in Single-Cell Sequencing for Understanding and Treating Kidney Disease," *Computation* 2026, 14(1), 6. doi: 10.3390/computation14010006. [Read More](#)
- J. L. Agraz, "Research Applications for Single-Cell Sequencing in the Kidney," *Kidney International Reports*, submitted. [Read More](#)
- J. L. Agraz, "Optimized Whole-Slide-Image H&E Stain Normalization: A Step Towards Big Data Integration in Digital Pathology," in *IEEE Open Journal of Engineering in Medicine and Biology*, doi: 10.1109/OJEMB.2024.3455011. [Read More](#)
- J. L. Agraz, "Robust Image Population Based Stain Color Normalization: How Many Reference Slides Are Enough?," in *IEEE Open Journal of Engineering in Medicine and Biology*, vol. 3, pp. 218-226, 2022, doi: 10.1109/OJEMB.2023.3234443. [Read More](#)
- Cloud Computing Batch Processing: Breast Cancer Image Population based Stain Color Normalization. *IEEE Open Journal of Engineering and Medicine and Biology*. 12 weeks away from submission.
- How to write a Research Journal Article using ChatGPT Super-Prompts. *IEEE transactions on learning Technologies*. 4 weeks away from submission.
- Hao J, Agraz J. NIMG-09. Predicting Overall Survival Of Glioblastoma Patients On Multi-Institutional Histopathology Stained Slides Using Deep Learning And Population-Based Normalization. *Neuro Oncol*. 2020 Nov 9;22 [Read More](#)
- J.L. Agraz, "Improved PHIP polarization using a precision, low noise, voltage controlled current source." *Journal of Magnetic Resonance*. 2013. V235, P 77-84. [Read More](#), [Read More](#)
- J.L. Agraz, "Effects of polarization rotation in the detection and tracking of orbiting objects using LabVIEW." 2014 IEEE Aerospace Conference. P 1-6. [Read More](#)
- J.L. Agraz, "LabVIEW-based control software for para-hydrogen induced polarization instrumentation." *Review of Scientific Instruments*: V85, Issue 4, p044705. [Read More](#), [Read More](#)
- J.L. Agraz, "Increasing Detection and Tracking Performance of Orbiting Objects in Space." *Open Journal Of Remote Sensing And Positioning*. ISSN(Print): 2374-6386 ISSN(Online): 2374-6408. [Read More](#)
- J.L. Agraz, "LabVIEW based control software for finger force sensor instrumentation design." *IEEE AutotestCon*. 2013, P 1-6. [Read More](#), [Read More](#)

- J.L. Agraz, "PHIP instrumentation pinch valve system for sample delivery, process and collection." *Adv. Biomed. Sci.* 2014, Eng V1, P 8-18. [Read More](#)
- J.L. Agraz, "Finger Force Sensor Instrumentation Design." *International Journal of Enhanced Research in Science Technology and Engineering*. V3, issue 3, P 149-155. [Read More](#), [Read More](#)
- Seung-Ho Park, J.L. Agraz, Safakan Tuncdemir, Young-Deog Kim, Richard E Eitel, Amanda Baker, Clive A Randall, Kenji Uchino. "Delta-shaped piezoelectric ultrasonic motor for two-dimensional positioning." *Japanese journal of applied physics*. V47, Issue 1R, P 313. [Read More](#)
- R. Eitel, A. Baker, J.L. Agraz, M. Lanagan, K. Uchino, C. Randall. "On-board fiber alignment in LTCC optoelectronic packages." *1st International Conference and Exhibition on Ceramic Microsystems Technologies*. P 20-24. [Read More](#)
- Rodriguez, Agraz, Pozos. "Biometric identification of spatio-temporal keystroke patterns." *Pattern Recognition*. Submitted

Abstracts

- Jose L. Agraz, Parker Wilson. "Impact of Y Chromosome Loss on Age-Related Gene Expression." *American Society of Nephrology Conference 2024*. [Read More](#)
- Jose Agraz, Caleb Grenko, Angela Viaene, Nasrallah MacLean, Michael Feldman, Hamed Akbari, Spyridon Bakas. "Novel Glioblastoma Population-Based Histologic Stain Normalization." *NeuroOncology*, Volume 22, Issue Supplement 2, November 2020. [Read More](#), [Poster Link](#)
- Jie Hao, Jose Agraz, Caleb Grenko, Ji Won Park, Angela Viaene, Maclean Nasrallah, Dokyoon Kim, Spyridon Bakas. "Predicting Overall Survival Of Glioblastoma Patients On Multi-Institutional Histopathology Stained Slides Using Deep Learning And Population-Based Normalization." *NeuroOncology*, Volume 22, Issue Supplement 2, November 2020. [Read More](#), [Poster link](#)
- Jose L.Agraz, C.M.Grenko, A.N.Viaene, M.P.Nasrallah, M.D.Feldman, H.Akbari, S.Bakas: "Novel Population-based Histologic Stain Normalization Reference Standard" *Pendergrass Symposium 2020*. [Read More](#)
- Shawn Wagner, Jose Agraz, and Debiao Li. "Quantitative Characterization of a Catalyzed PHIP Reaction." *Proc. Intl. Soc. Mag. Reson. Med.* 21 (2013). [Read More](#)
- Shawn Wagner, Jose Agraz, Alexander Grunfeld, and Debiao Li. "Polarization Loss From Magnetic Field Noise." *Proc. Intl. Soc. Mag. Reson. Med.* 21 (2013). [Read More](#)

- Shawn Wagner, Jose Agraz, and Debiao Li. "Affordable Hyperpolarization by Parahydrogen Induced Polarization." WMIC, Jan (2011). [Read More](#)
- Z Fan, S Zuehlsdorff, P Lai, Y Chung, J Agraz, D Li. "Prospective Self-Gating To Eliminate Motion Artifacts in 3D Carotid Artery Wall Imaging." Proc. Intl. Soc. Mag. Reson. Med.V8,P 3695. [Read More](#)
- Z Zhang, N Mascheri, J Agraz, Z Fan, R Tang, X Bi, P Weale, D Li. "Quantitative Analysis of DCE-MRI to Identify and Characterize Plaque at Early Stages (AHA I-III)." Proc. Intl. Soc. Mag. Reson. Med. 2010, V18, P 3681. [Read More](#)
- M Camarena, JL Agraz, B Barnes, RS Pozos. "Sequential finger force associated with fatigue." International Journal Of Psychophysiology. V45, Issue 1-2, P 144. [Read More](#)
- Jose Agraz, Richard Eitel, Amanda Baker, Kenji Uchino. "Lambda Shaped Piezoelectric Linear Motor." 45th ICAT/JTTAS Joint International Smart Actuator Symposium. State College, PA. October 2004

Patents

- US6352516B1. Robert Pozos, Jose L Agraz. "Fatigue monitoring device and method," [Read More](#)
- US6673026B2. Robert Pozos, Jose L Agraz. "Force measuring device and method," [Read More](#)
- CA2404224A1. Robert Pozos, Jose L Agraz. "Force measuring device and method," [Read More](#)
- WO2001072223A2. Robert Pozos, Jose L Agraz. "Force measuring device and method," [Read More](#)
- US10347004B2. Robert Pozos, Jose Agraz, Alicia Leon, Brent Baccetti. "Musical sonification of three dimensional data," [Read More](#)
- US10121249B2. Brent Baccetti Robert Pozos, Jose Agraz, Alicia Leon. "Enhanced Visualization of Areas of Interest in Image Data," [Read More](#)
- US9821290B2. Shawn Wagner, Jose Agraz, Debiao Li. "Devices and methods for parahydrogen induced polarization," [Read More](#)
- WO2005055815A2. Robert Pozos, Jose Agraz*. "Systems and methods for dynamic analysis of muscle function and metabolism," [Read More](#)
- US7501743B2. Kenji Uchino, Clive A Randall, Jose Agraz, Richard Eitel, Seung-ho Park. "Piezoelectric ultrasonic motor for 2-dimensional positioning," [Read More](#)

Certifications

- NSF CyberAmbassadors Certification: Communication, Teamwork, Leadership skills. 2025

Students Master Thesis

- Willey, Cindy L. DSP of space surveillance targets and IF to audio band downconverter. San Diego State University. 2007
- Muse, Daniel S. Real time sonification of motion. San Diego State University. 2015

Teaching Experience

- Electrical Engineering Micro Electronic Circuits Laboratory Instructor (EE430L & EE330L). San Diego State University
- Analog Circuits lecturer, Southwestern College. Chula Vista, CA

Skills

- Imaging:*** Magnetic Resonance Imaging (MRI), para-Hydrogen Hyperpolarization, Big Data Imaging in Pathology
- Programming:*** Python (Dask, Scikit-Image), LabView, Matlab, Solidworks, C, Docker, Perl, FEA, Csuite, GitHub, and familiar with Snowflake and SQL
- Machine Learning:*** Online Dictionary Learning and Lasso
- Hardware:*** PIC microcontroller, I2C, Schematic Capture and Layout, Signal Conditioning, Analog/Digital design, RF down converter, power supplies, Wearables, Precision Force, Temperature, and Acceleration, Noise measurements, Piezoelectric Motors, Data Collection
- OS Proficiency:*** Linux *Debian*, Windows
- Management:*** Agile/scrum, Mentoring, Product development, design, execution, and implementation
- Cryptocurrency:*** Bitcoin, Sia, and Ethereum mining

Other Information

Fellowships & Awards:

1. NIH Pre-Doctoral Fellowship, Northwestern University, Evanston, IL
2. CLIMB professional development program, Northwestern University, Evanston, IL. [Read More](#)
3. Button-Waller Fellowship, Pennsylvania State University. State College, PA
4. PREP NIH Fellowship, San Diego State University, San Diego, CA.
5. REMEC Inc Fellowship, San Diego, CA.
6. Innovation Technology Award, San Diego State University, San Diego, CA.
7. MAERC Fellowship, San Diego State University, San Diego, CA.
8. 1st Prize, Semiannual IEEE student chapter, San Diego State University, San Diego, CA.

Memberships:

1. Institute of Electrical and Electronics Engineers (IEEE)
2. American Society of Nephrology (ASN)

Extra-Curricular Activities:

1. Hiking El Camino Frances (France/Spain) [Read More](#), El Camino Portugues (Portugal) [Read More](#), and the Great Ocean Walk (Australia) [Read More](#) and traveling around the world ...
2. Cryptocurrency mining and staking
3. Martial Arts, Krav Maga Orange Belt
4. Rock Climbing

References:

1. **Robert Pozos, Ph.D.**

Professor Emeritus, friend and mentor for over 20 years

Email: bpozos@gmail.com

Phone: 619-687-8663

2. **Shawn Wagner, Ph.D.**

Professor, Mentor and friend for over 10 years

Cedars Sinai Medical Center

Email: shawn@hyperpolarizationengineering.com

Phone: 626-379-2828

3. **Bojan Segedincev**

Engineer, friend for over 15 years

ViaSat

Email: bojan_email@yahoo.com

Phone: 619-733-5001

May 12, 2026