ARIA PEZESHK

Cell Phone: (814) 441-7880 | **Email**: aria.pezeshk@gmail.com | Linkedin | Publications | **Location**: Washington, DC

Professional Summary:

Versatile detail-oriented engineering leader with extensive experience in applied AI/ML spanning industry, government, consulting, and most recently a deep tech startup. Proven track record in building & guiding multi-disciplinary teams through various stages of 0-1, from initial research phase to POC to production, and across different domains from medical imaging to multisensor perception system with machine learning and sensor fusion algorithms on the edge to transitioning to a cloud-based AI data science platform and delivering to enterprise customers. Demonstrates a strong bias towards rapid development while staying close to design and technical implementation decisions and maintaining high-quality standards. Adept at building and managing multi-disciplinary teams, collaborating with external software and hardware contractors, and crafting technical strategies and product roadmaps. Experienced in overseeing projects from initial customer contact to successful delivery. Author of numerous journal & conference papers, inventor with multiple awarded patents.

Work Experience:

- **Head of Engineering, Plato Systems, San Francisco, CA (2/22-present) (Remote)**

Plato Systems is an NEA backed Stanford spinout with an AI-powered digital twin platform helping improve productivity in modern manufacturing. The proprietary edge HW uses sensor fusion on data from camera and radar to provide GPS-like indoors ground tracking without tags; the cloud-based AI & data science platform provides root-cause attribution for productivity bottlenecks based on patterns identified across a variety of data streams (time-series, structured & unstructured data, video, ...) ingested into Plato's data lakehouse. The SaaS platform has been deployed to multiple multinational semiconductor & electronics manufacturing companies across the globe.

  - Hired & managed the entire multi-disciplinary engineering team to fully launch Plato's platform for manufacturing productivity consisting of edge HW, a cloud-based AI & data science platform, & a customer-facing frontend UI
  - Cultivated industry partnerships (e.g. joint session with NVIDIA on self-service LLM/VLM hierarchical agentic AI tools & industrial conversational copilots that run on combination of structured & unstructured data, video, ...)
  - Closely led the AI algorithm development & deployment across camera & radar, sensor fusion, data science, & gen AI on the cloud; actively involved in design, code reviews, establishing standards for quality & going to production
  - Hands-on deep technical leadership in all aspects of architecture, design, evaluation, & evolution of AI and data science algorithms from POC to MVP to production
  - Created and managed strategy, roadmaps, milestones, timelines, & deliverables for a team of >15 engineers following agile development, and managed internal team and external SW contractors across system SW, compute optimization on Nvidia Jetson, AI & algorithm development, data science, data engineering (schema unification, medallion architecture, ETLs, data governance...), & analytics infrastructure (Databricks on AWS), and cloud SW
  - Managed engagements with three multinational enterprise customers from 1st contact to pilots to LTAs
  - Contributed to product features, presented to customers, and developed external collaborations & relationships
  - Closely collaborated with the product, sales, & operations teams to translate business and customer requirements into engineering milestones & deliverables and rapidly iterate as needed

- **Head of Machine Learning, Plato Systems, San Francisco, CA (1/19-2/22)**
  - Managed the successful launch of Plato's 1st generation HW/SW platform on SW and algorithms side
  - Established and set up the processes for machine learning based on vision and mm-wave radar data, from on-prem multi-GPU servers to data collection, data annotation, development and rigorous evaluation of various algorithms
  - Implemented POCs and acted as tech lead for computer vision pipelines for multi object tracking and object detection, radar detection and tracking, object classification using radar data, and fusion between camera & radar
  - Hired and supervised FTEs and interns. Grew SW/algorithms team from 4 to 12 engineers

- **Research & Regulatory Scientist, US Food & Drug Administration (FDA), Silver Spring, MD (12/12-1/19)**

OSEL is the research arm of CDRH, providing groundbreaking research & SME services to other divisions at the FDA.

- First at FDA to establish deep learning research & required infrastructure for medical imaging and algorithms.
- Initiated, provided training on, and led deep learning research in the division for various projects involving time series, 2D and 3D volumetric data (computer-aided detection CADe, computer-aided diagnosis CADx, ...).
- Developed funding proposals resulting in >$1M grants as PI or co-PI, initiated collaborations inside and outside of FDA, and managed hires (postdocs and interns) for various projects.
- Provided scientific regulatory consults evaluating safety and effectiveness of submissions for >45 medical devices (radiological, optical, spectroscopic, etc.) that use ML, algorithms, or CV (q-subs, de novo, MDDT, IDE, etc.) in CDRH Office of Device Evaluation (ODE) & Office of In-vitro Diagnostics and Radiological Health (OIR)
- Passed the Reviewer Certification Program (RCP); Types of consults: imaging algorithms, AI, statistical, clinical/pivotal study plan.
- Participated in several regulatory working groups and steering committees within FDA as SME (traumatic brain injury, big data, & adaptive algorithms), and represented FDA / gave talks at various external events.
- Developed custom 2D & 3D imaging data augmentation algorithms for medical datasets with a small number of samples for use in reader studies, classifier training, and validation of quantitative imaging algorithms.
- Published research & wrote several proposals on methods for training computer aided diagnosis systems (CAD) in lung CT and digital mammography in data starved scenarios.
- Developed SW for data augmentation and reader studies with radiologists & expert readers.

- **Computer Vision Algorithms & Software Consultant, Personal Consulting, Rockville, MD (12/14-6/16)**
  - Contract for NGA to extend PhD work; Developed computer vision algorithms for an end-to-end map understanding system to automatically detect, extract, & recognize text and graphical components in scanned maps.
- **Yield Engineer, Intel Corporation (PTD Group), Hillsboro, OR (08/11-12/12)**
  - Developer & owner of the Automatic Defect Classification (ADC) platform to detect and classify inline defects on both patterned & un-patterned wafers from SEM imagery for Intel's 14nm process.
  - Responsible for devising the roadmap, working with stakeholders for data curation and labeling, training & evaluation of ML models, & various statistical analyses. Models used in active production lines at various Intel fabs.
- **Research Assistant, PSU Department of Electrical Engineering (08/06-05/11)**
  - Developed end to end CV solution for segmentation & extraction of features in scanned topographic maps; methods included color clustering, directional morphological filtering, & various statistical measures
  - Developed a custom multi-font, segmentation-free, Hidden Markov Model (HMM)-based character recognition engine for text extracted from maps that beat the performance of commercial OCR algorithms at the time
  - Integrated algorithms as software plug-in for ArcGIS (a commercial Geographic Information System)
- **Intern, GE Global Research Center, Niskayuna, NY (05/08-08/08)**
  - Developed new decoding schemes for modulation codes under optical and electronic noise for next generation micro holographic data storage systems, resulting in 3 patents

Working Status: US Citizen

Education:

- **The Pennsylvania State University (PSU), University Park, PA (08/05 – 08/11)**
  PhD Electrical Engineering, GPA: 3.88/4.0
  Dissertation Topics: Machine Learning, Computer Vision, Text Recognition & OCR, Digital Signal Processing
- **Michigan Technological University (MTU), Houghton, MI (01/03 – 05/05)**
  BS Electrical Engineering Summa Cum Laude, Minor in Math, GPA: 3.94/4.0

Technical Skills:

- Deep Learning, Computer Vision, Agentic AI & generative AI (RAGs, LLM, VLM, VQA, Fine-tuning, ...), Object Detection & Classification, Traditional Machine Learning (random forest, xgboost, SVM, HMM, ...), Data Science (clustering, regression, pattern recognition, ...), Kalman Filters, Multi-Object Tracking, Sensor Fusion, EDA, Time-series Analysis, Data Visualization, Analytics & KPI Definition
- Programming: Python (Numpy, Scikit-learn, Pandas, Plotly, Matplotlib, TensorFlow, Keras, PyTorch), SQL, MATLAB