

SWAROOP KUMAR PAL

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WORK EXPERIENCE

- Apple** - Location Estimation Engineer / ML Model Optimization Engineer 2019 - Present
- Developing estimation, fusion & ML algorithms for Location, Fitness, [Wellness](#) features on millions of devices.
 - Owner of on-device GPS analytics modules - millions of data points influence future hardware/software designs.
 - Building dashboards & web services for simulation, replay & regression tools for rapid prototyping and testing.
 - Building agentic tools & DRI for triaging 100+ monthly positioning system bugs from internal/public users.
 - Led model tracking across 100+ teams; built analysis tooling for per-model compression strategies.
 - Optimized on-device models (quantization/pruning/distillation), saving 20% system memory in iOS '24.
- Intel** - Positioning Engine Software Engineer 2017 - 2019
- Built and owned an experiment tracking platform for iPhone 11 GNSS software development and validation.
- Aireal** - Founding Engineer 2016 - 2017
- Built world's first Geospatial AR SDK, led Computer Vision research, app dev, demos to investors and clients.
- BMW** - Product Innovation Engineer Summer 2016
- Prototyped VR/AR infotainment apps using sensor fusion, computer vision & navigation systems for CES demos.
- Intel** - BLE Software Engineer Fall 2015
- Built a C++ IoT gateway capturing BLE beacon data for warehouse package detection; won Best Demo award.
- Future Immersive Virtual Environments Lab** - Graduate Researcher 2015 - 2016
- Designed and developed VR apps for research and user studies. Published and presented 2 IEEE papers.
- TATA Consultancy Services (Jaguar Land Rover)** - Embedded Systems Engineer 2011 - 2014
- Developed Jaguar's first in-car speech application, standardized dev board bring-up, DRI for releases and demos.

EDUCATION

- AI Graduate Certificate, Stanford University 2024 - Present
(Deep Learning for Computer Vision, Deep Reinforcement Learning, Decision Making Under Uncertainty)
- M.S. in Computer Science, University of Texas at Dallas 2016

PROJECTS

- [Engineermaxxing](#), Personal 2026
- Product design, agentic architecture, novel learning interfaces for a self-evolving education & research platform.
- [Point and Pick: Diffusion Policies for Target-Specific Robot Manipulation](#), Stanford 2026
- Developed MuJoCo simulation/Modal eval infra for sim & real robots. **Honorable mention** among ~250 projects.
- [Life is indeed a POMDP](#), Stanford 2025
- Modeled a Hybrid LLM+POMDP wellness agent inferring hidden user state from chat; forward search for actions.
- [GAS - A Visual Navigation Framework for Producing 2D and 3D Semantic Maps from Video](#), Stanford 2024
- Collected and pre-processed datasets. [Fine-tuned Detectron2](#) model and ran hyper-parameter experiments.
- [Silver Unicorn - An Augmented Companion Robot, Reality Virtually Hackathon, MIT Media Lab](#) 2016
- Developed a XR [Companion Robot](#). **Awarded 1st prize** in Getting Things Done and Doing Business category.
- [IoTxMR - Mixed Reality Smart Home on HoloLens](#) - Microsoft [AT&T SF Hackathon](#) 2015
- Developed app and hardware to provide spatial UI for cross-platform devices. [Featured in Digital Trends](#).

SKILLS

Programming: **Current:** C++, Python, Agentic Coding | **Past:** C#, C, Java, POSIX, Android, OpenCV
Tools: **Current:** Claude Code / PyTorch / Modal / MuJoCo | **Past:** Unity, AR/VR SDKs, ARKit, ROS, Arduino

PATENT and PUBLICATION

- US Patent Estimating Time Outdoors and in Daylight Based on Ambient Light, Motion and Location Sensing.
- [The Benefits of Rotational Head Tracking](#) IEEE 3D User Interfaces (3DUI) (**Presented at conference**).
- [Assisted in post-production \(apps for rendering videos in Unity\) of an immersive VR movie. Credits on IMDB.](#)