Andrew Ganse, PhD

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Professional Experience

Senior Imaging Data Scientist, ThruWave Inc. *July 2020 – present.*
- Owned and grew the company's data science capability from scratch, enabling its 3D millimeter wave radar imaging systems and RGB/depth cameras to deliver actionable results at scale to customers for fraud, warehouse inventory management, quality control (e.g. divert sealed boxes with fraudulent contents).
- Successfully completed 10+ pilots at major corporations and agencies, resulting in multiple conversions to revenue-generating customers.
- Leading a 4-member data science team in building out the system and conducting customer analyses, iterating directly with product manager, CTO, and CEO to best fit technical plans to business goals.
- Designing computer vision and machine learning for classification, boxbounds, and anomaly detection; OpenCV, Scikit-learn, Keras/Tensorflow, SciPy, Python/Pandas, PostgreSQL, Docker, MLflow, AWS.
- **Patent:** Ganse, A.A., et al. (2022). Systems and methods for high throughput anomaly detection with 3D millimeter wave imaging. U.S. Patent No. US20240192148A1, filed 2022-Mar-31. Patent pending.

Radar Data Scientist, R&D Team, Echodyne Corporation. *Dec 2017 – July 2020.*
- Owned and designed the company's field-test database and performance evaluation system for its novel meta-materials radar, supplying performance specs for its marketing literature, resulting in customers responding: "This company is the only one whose radars do exactly what their literature says they do!"
- Led a team to build that evaluation system and use it in operations, iterating with product managers to create 10s of analysis reports from 100s of field-tests, resulting in ongoing customer conversions.
- Initiated and co-developed the company's first tracked-object classifier, on its EchoGuard product, a machine learning feature which quickly became one of the most requested by customers for that product.
- Led a team to research and develop machine learning methods for automotive radar tracking and classification, integrating them into the cognitive radar system for the company's AV test vehicle.
- Technical management and mentorship of 2-5 people per project in multiple concurrent projects; co-organizer of the company's intern program.
- Python/Pandas, PostgresSQL, Docker, RabbitMQ, MLflow, Scikit-learn, Keras/Tensorflow, Nvidia GPUs.

Principal Scientist, Anseres Research & Technology LLC. *Sept 2016 – Dec 2018.*
- Scientific R&D consulting in defense and space science; completed multiple federal subcontracts.
- Published radio-science gravimetry research at conference with NASA & university collaborators.
- Led SBIR proposal submission on Deep Learning for Clutter Reduction in [Sonar Systems], with university collaborators.

Data Scientist, Spare5. *Jan 2016 – June 2016.*
- Developed machine learning models for data quality and user reputation evaluation on Spare5's intelligent-crowdsourcing platform for data labeling. Word2vec, PostgreSQL, R/Rserve, Python/Pandas.
- Produced model that resulted in 8% lift in search-traffic to a customer's data in first few months of job.

Senior Research Physicist, Applied Physics Laboratory, Univ. of WA. Apr *1999 – Nov 2015.*
- Designed research experiments, conducted applied physics research in inverse problems and wave propagation in random media, in seismo-acoustic, electromagnetic, and gravimetric domains.
- Published research results in 25 publications (including conference publications).
- Nonlinear regression, inversion, optimization, Kalman filters, tracking, sensor fusion, signal processing.
- Managed 2-6 others at a time testing/operating field instruments. Managed 2 undergrad students.

Education

Ph.D. Geophysics and **B.S. Electrical Engineering**, both from University of Washington.

Selected Side Projects (see GitHub and research.ganse.org)

Flow_models: Flow-based invertible neural networks via TFP for generative image modeling.
Gpt_client: CLI-based OpenAI/ChatGPT client with model selection, token tracking, and URL parsing.

(Publications listed on research.ganse.org website.)