

# Spencer Alexander

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Seattle, WA

## Data Scientist and Product Manager

Versatile and technically adept professional with 13 years diverse experience in data research, modeling, and engineering in conjunction with product management and development (1 year, Microsoft and 5 years, ASML), scientific and computational research (5 years, University of Oregon), and R&D for advancing products from concept to prototype (2 years, Voxel).

2 MS Degrees in Physics, 3 professional certificates in AI and ML, 2 patents in ML and product development, 1 Nature publication in diffractive optics, 4 company accolades for data workflow leadership and high-impact product contributions.

Proven track record of transforming raw data into valuable insights. Adept in leading execution of statistical analyses to support critical business decisions. Accomplished in product roadmap development and execution. Well-versed in collaborating with interdisciplinary teams and customers to pioneer innovative solutions. Experienced in optimizing algorithms for robust, efficient performance. Instrumental in spearheading advanced data analytics on ad-hoc projects from conception to completion.

### Areas of expertise include:

Data Analysis | Data Visualization | Data Mining & Mapping | Machine Learning | AI Model & Product Development | Statistical Modelling & Inference | Scientific Computing | Software Development & Review | Software CI/CD | Cloud Computing | Technical Testing & Automation | Optics & Photonics | Product Management | Product Roadmap Development & Execution | Product Feature Specification & Oversight | BI Applications | BI Reports | Technical Communication & Presentation | Team Collaboration & Leadership | Training & Development | Cross-functional Collaboration | Continuous Process Improvement

## Career Experience

### Microsoft, Redmond, WA

2024 – 2025

Technical Product Manager for AI and Cloud Computing

Led end-to-end development and deployment of AI-driven outage detection and triage products within Azure's AIOps organization, under the Brain team. Partnered with data scientists and engineers to design, train, validate, and operationalize models that detect service incidents, classify their severity, and route alerts to the correct service owners before customer impact. Coordinated with UX PMs to align user experience across Brain and ensure scalable, reliable, and user-friendly workflows for on-call engineer use. Drove platform readiness for efficient model training, retraining, and large-scale deployment, while evangelizing AI literacy across AIOps teams.

### Key Accomplishments:

- Reduced time to detection of Brain-detected Azure outages by 10% through delivery of precision-recall-optimized outage detection models trained on service level indicator (SLI) data.
- Launched new generation of multimodal detection models incorporating non-SLI signals, improving outage identification recall by 10% without significant loss of precision.
- Launched new generation of multimodal detection models incorporating non-SLI signals, improving outage identification recall by 10% without significant loss of precision, and establishing groundwork for Brain as Azure's central cross-signal hub for future AI-centric outage detection with minimal user configuration burden.
- Founded and facilitated the "AIOps AI Learning Series," a recurring cross-disciplinary forum where engineers and PMs shared methods, frameworks, and best practices in applied AI, strengthening team fluency and alignment with the evolving AI ecosystem.

## ASML, Hillsboro, OR

2018 – 2023

### Data Scientist and Product Manager

Steered data-driven product development to satisfy customer needs and motivate product adoption. To do so, established roadmaps and deliverables, AI/ML models, statistical methodologies, data visualizations and dashboards, and software libraries to identify customer process shortcomings and orient solutions to overcome them. Critically, served as liaison between customer and internal teams, facilitating coordination among software, data infrastructure, engineering, and marketing stakeholders.

#### **Key Accomplishments:**

- Drove customer adoption of product suite valued at over \$300M by successfully landing software applications critical to customer success and demonstrating their benefits when used with multiple ASML products in combination.
- Attracted over \$30M in customer investments by designing software for predicting misalignment between computer chip layers. Product achieved 50x resolution improvement, exceeding established high-throughput measurement limits.
- Attained 10% anomaly detection increase and 5% noise reduction in regressive models used by Intel statistical process control engine software by incorporating process issue root-cause predictors.
- Accomplished yearly benefit opportunity of \$15M by developing dashboard and automated data retrieval/analysis software for extraction, modelling, and visualization of machine data for failure prediction.
- Improved accessibility and scalability of key pathfinding initiative by migrating metrology big data workflows from local systems to cloud platforms, including Azure and ASML-owned HPC.
- Empowered team with valuable skills by establishing 10-course sequence focused on scripting and advanced data analysis, now integral part of engineer training library.
- Led successful acquisition of metrology patent by creating predictive regression- and neural network-based models to predict scanning electron microscope measurements based on optical data.

## University of Oregon, Eugene, OR

2013 – 2018

### Graduate Researcher

Enabled angular momentum-based phase and magnetic imaging, as well as advanced electron microscope capabilities, by enhancing creation of x-ray and electron beams. Used wave mechanics and Fourier analysis to simulate behavior of optical components, laying foundation for noteworthy publication in Nature Photonics.

#### **Key Accomplishments:**

- Optimized data analysis and research processes by coding Python repositories for image processing, physical modeling, and instrumentation control.
- Engineered microwave antennae for generation of oscillating magnetic fields through application of computational tools, such as Mathematica and COMSOL, and theoretical knowledge in circuit and transmission line theory.
- Pioneered method for acoustic wave production by engineering solid state diode and leveraging interaction of phonons with host material through light assistance.

## Voxel Inc., Eugene, OR

2011 – 2013

### Researcher

Advanced light detection technology by driving development of quantum dot-based photodetector devices. Acquired photonics patent to facilitate imaging technology R&D by researching quantum dot applications in Si-based IR and x-ray light detectors.

#### **Key Accomplishments:**

- IP generation: Successfully acquired patent by devising methodology to safeguard quantum dots from degradation.
- Lab software modernization: Enhanced efficiency of company laboratory by implementing software-based coordination system for instrumentation and replacing previous ad-hoc approaches.

## Education

**M.S. Physics, from Ph.D. Program | Focus: Diffractive Optics, On-chip Photonics**, University of Oregon, Eugene, OR, 2018

**M.S. Applied Physics | Focus: Semiconductors & Photovoltaics**, University of Oregon, Eugene, OR, 2012

**B.S. Chemistry | Research: Energy Storage Devices**, University of Texas, Austin, TX, 2010

## Technical Proficiencies

Python | MATLAB | R | SQL | PHP | JS | AWS | Azure | Mathematica | Tableau | Spotfire

## Awards & Accolades

- Professional certificates: [Caltech AI and ML Bootcamp](#), [DL.AI TensorFlow Developer](#), [IBM Data Science](#)
- Patents: [Machine learning for synergistic metrology](#), [Quantum dots for photodetectors](#)
- Papers: [Nature Photon 13, 205–209 \(2019\) – LG and HG soft x-ray states generated using diffractive optics](#)
- Awards: [2022 Sharktank winner for new data analytics](#), 2021 Sharktank winner for ML imaging workflows, 2020 P2P award for outstanding collaborative achievements, 2019 P2P award for high-impact products