

BRENNAN SELLNER, Ph.D.

LEADER, ROBOTICIST, TECHNOLOGIST

CONTACT



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Pittsburgh, PA

BY THE NUMBERS

- ⦿ 22 years of robotics expertise
- ⦿ 13 years in management
- ⦿ 10 million production miles with no human safety incidents
- ⦿ Increased robot fleet & deal size by 24x via new product dev
- ⦿ Built 4 software development teams / groups
- ⦿ Increased patent filings by 7x

SELECTED SKILLS

- ⦿ Leadership & collaboration
- ⦿ Mobile robotics
- ⦿ Messaging & parallel systems
- ⦿ Logistics automation
- ⦿ Systems architecture
- ⦿ Data & actionable analytics
- ⦿ Technical communications
- ⦿ Team building & mentoring
- ⦿ Intellectual property
- ⦿ Project & product planning
- ⦿ Agile software development
- ⦿ Due diligence

INTERESTS

- ⦿ Distributed robotics
- ⦿ Planning & scheduling
- ⦿ Execution & orchestration
- ⦿ Human-robot interaction
- ⦿ Medical / healthcare
- ⦿ Agriculture
- ⦿ Orbital infrastructure
- ⦿ Aquatic robotics
- ⦿ Social robotics

PROFILE

Experienced leader, roboticist, and technologist with significant skills in mobile robotics, fleet management, actionable data, complex systems, technical communication, team & department building, intellectual property, and creating highly reliable & safe fielded systems.

Passionate about people, robotics, and making a difference in the world through their intersection.

EXPERIENCE

○ Sr. Director of Robotics (UX & Data)

Seegrid, 2022 - 2023

Supervised three teams responsible for all data & analytics as well as UI/UX across robot & fleet software.

- Built architecture to support enterprise-wide telemetry.
- Reduced data spend by 92% via optimization campaign.
- Chair of Software Architecture Board.

○ Sr. Director of Advanced Development

Seegrid, 2020 - 2022

Conceived of, pitched, built, and directed an entirely remote internal research & development group of 10 researchers.

- Completed four major research projects.
- Enabled a \$10.8M sale by creating a novel detection system.
- Built multi-million dollar statement of work & business case and earned buy-in and approval across the C-suite and org.
- Managed IP & increased patent filings to 15/yr, a 7x increase.
- Co-led departmental transition to scaled Kanban, increasing development efficiency, velocity, and transparency.

○ Director of Software Technology (Perception)

Seegrid, 2017 - 2020

Rebuilt and led the Perception team of 9 after key departures. Responsible for all aspects of perception on Seegrid robots.

- Increased update rate of primary localization system by 2x.
- Enabled a \$22.5M sale by bringing up a new sensor stack capable of detecting low obstacles on matte black floors.
- Managed & helped resolve thorny field issues, interfacing at the VP level with Fortune 500 companies.

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TECH STACK

Highlights:

- ⦿ C++, Python, Javascript
- ⦿ RabbitMQ / AMQP, Pub/sub messaging
- ⦿ Highly parallel systems
- ⦿ GCP
- ⦿ Docker, Kubernetes
- ⦿ Qt, Chaco
- ⦿ Linux
- ⦿ LIDAR, Embedded Cameras
- ⦿ YouTrack, TeamCity, Confluence
- ⦿ Git, Subversion

PATENTS

Dynamic allocation and coordination of auto-navigating vehicles and selectors. Sellner, Brennan. 2020. US 11693403.

VOLUNTEERING

Resonance Works, 2013 - present

- ⦿ Performing arts non-profit
- ⦿ Treasurer: \$200k budget
- ⦿ Technical Director
- ⦿ Head Carpenter

LEARN MORE

Complete CV & publishing history available at sellner.org/cv

EXPERIENCE (CONT.)

○ Director of Software Development (Fleet)

Seegrid, 2015 - 2017

Conceived of and championed the Seegrid Supervisor product, which enabled a 24x increase in robot fleet and deal sizes, from 3 robots per site to >80. Built a dedicated development team of 12.

- Architected & implemented a reactive robotic rules engine that enabled fleet-scale operations and drove \$320M in sales.
- Built system allowing safe operation of robots in shared spaces, enabling dozens of new customer applications.
- Acted as de facto product manager.

○ Director of Software Development (Robotics)

Seegrid, 2011 - 2015

Managed a software team of 11 and all aspects of the software cycle at Seegrid, which was then purely on-robot. Emphasis on safe & reliable software on robots moving 4 ton loads.

- No human safety incidents in 10M miles in production.
- Rearchitected major portions of the robot control software.
- Converted from home-grown messaging to pub/sub.

○ Senior Software Developer

Seegrid, 2009 - 2011

Focused on robotic operations; one of only five software developers in the company.

- Built a robot simulator from scratch.
- Rewrote logging & data analysis subsystem.

EDUCATION

○ Ph.D & M.Sc. in Robotics

Carnegie Mellon University, Pittsburgh, PA, 2001 - 2008

Thesis: *Proactive Replanning for Multi-Robot Teams*

Projects: Robotic assembly, distributed architectures, scheduling

○ B.S. in Comp. Sci. & Human-Computer Interaction

Carnegie Mellon University, Pittsburgh, PA, 1997 - 2001

Minor in Robotics, University Honors