

Manoj Malviya | Software Engineer

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Versatile Software Engineer with **6+ years** of professional experience. Strong problem-solver with a **user-first mindset**, with a track record of leading complex projects with strong initiative and creative solutions.

Technical Skills

Languages	C++, Python, QML, JavaScript, HTML, MATLAB, SQL
Frameworks	Qt , Bootstrap, React, TensorFlow, Django, PyQt, WxPython, Plotly-Dash
Tools	Docker, Git, Jira, Figma, AWS, Redash, Grafana
Software Concepts	UI-Development, Embedded Systems, Agile Methodology
Mathematics	Linear-Algebra, Computer-Graphics, Optimization, Data-Driven Algorithms

Work Experience

Software Engineer | *Formlabs Inc*

Jan 2021 - Present

- Led the **end-to-end development** of high-performance, user-facing features for a [flagship product](#) (~1.5m sessions/month), improving workflow efficiency by ~30% and ensuring scalability across releases.
- Revitalized a core product feature by inventing a **patent-pending** high-performance optimization algorithm, resulting in a 35% reduction in end-user costs and significantly improving system reliability and usability.
- Led the development of a **modular, scalable UI** framework using C++ and QML. Facilitated seamless collaboration with designers and beta users, achieving a ~27% improvement in user experience. [Blog](#)
- Developed and maintained **web-based** computational tools for internal data collection, data-analysis and product management, reducing users workflow time up to 85%. Hosted the website using Docker, Django, and AWS.
- Initiated and developed **large-scale data analysis** tools, enabling data-driven feature development and strategic decision-making. Used SQL, Redash, and Segment logging.
- Collaborated closely with the team: managed 6 interns, lead pair programming sessions, reviewed code changes, conducted user studies, fixed critical bugs, and set coding standards to drive feature development.
- Recipient of Perform Award, given in recognition of productivity and performance to Top 3 engineers.

Research Assistant | *Pennsylvania State University*

Aug 2018 - Dec 2020

- Developed novel computational algorithms to automate design processes for embedding in additive manufacturing, resulting in published research in top mechanical design journals. [Conference](#), [Journal](#)
- Engineered data analysis tools and interactive design experiments, using eye-tracking technology and probabilistic models to improve user insights. [Journal](#)
- Coauthored 7 peer-reviewed publications and presented research at scientific seminars, weekly meetings, thesis defenses, and international conferences. Mentored undergraduate students on their Honors' theses.

Education

Master of Science in Mechanical Engineering | *Pennsylvania State University*

GPA - 3.88/4 | Algorithm Development, Computational Design, Optimization, Data-Driven Design

Bachelors of Technology in Mechanical Engineering | *Indian Institute of Technology*

GPA - 3.95/4 | Engineering Design, Numerical-Optimization

Projects

- **Build orientation selection tool:** Developed a tool for additive manufacturing selecting orientation for maximum reliability. [CAD-19](#), [CAD-Journal](#)
- **Personal Portfolio:** Developed a modern portfolio [modern portfolio](#) from scratch in one month, using HTML and JavaScript, featuring web tools like a [Music Visualizer](#).
- **Generative AI for Topology Optimization:** Developed a deep learning model for rapid topology optimization for faster results. [Preprint](#)
- **Mock Application Development:** Developed an game for cancer-diagnosed by conducting and analyzing user-interviews, surveys and mock-up design phases.