Yunsik Ohm, Ph.D.

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SUMMARY

I am a versatile engineer transitioning from materials science to software engineering, with a focus on computer vision and artificial intelligence/machine learning. My experience in experimental design, root cause analysis, statistical analytics, and data analysis/visualization has provided me with a solid background in handling complex problems and developing innovative solutions. As an outcome, I have published multiple first author scientific papers in top tier peer-reviewed journals. I am now leveraging this expertise to specialize in computer vision and machine learning, with a focus on creating, debugging, and validating algorithms to solve real-world challenges in a collaborative and cross-functional environment.

EDUCATION & CERTIFICATION

AWS Certified Solutions Architect - Associate (SAA-C03)   December 2024 – December 2027

Carnegie Mellon University, Pittsburgh, PA   August 2022
Ph.D. and *M.S.* in **Mechanical Engineering**: Cumulative GPA: 4.00/4.00.

Seoul National University, Seoul, South Korea   August 2017
B.S. in **Mechanical Engineering and Biomaterials Engineering**: Cumulative GPA: 3.96/4.30 (Converted: 3.84/4.00).

TECHNICAL SKILLS

Programming Languages: Python, PyTorch, C/C++, MATLAB, JavaScript.
Cloud Platform: Amazon Web Services (AWS).
Data visualization/manipulation: SQL, Matplotlib, Seaborn, Tableau, Pandas, NumPy.
Tools & Frameworks: Git, Conda, OpenCV, OpenGL (3D geometry CAD project), Linux (Ubuntu), Arduino.
General Skills: Root cause analysis, Data visualization, Scientific writing, Project management, Communication, Collaboration.
Miscellaneous Skills: Adobe products (Premiere Pro, Photoshop, Illustrator), Microsoft Office.

WORK EXPERIENCE

Research Development Process Engineer, *Meta through NoiseFigure Research*, Redmond, WA   March 2023 – May 2024
- Led development of microfluidic channels with **>90% yield** in early R&D stage for AR/VR wearable devices by optimizing design for manufacturing (DFM) processes and integration with flexible printed circuit (FPC) technologies.
- Facilitated integration across **three cross-functional research divisions** to integrate Meta hands and stretchable circuit boards by establishing to a robust development pipeline for wearable devices.
- Designed flexible printed circuit (FPC) boards using **ECAD software** (e.g., **Altium**) and assembled FPCs with **microelectronics**, including IMUs, multiplexors, resistors, or capacitors.
- Reduced fabrication **errors** to **within 3%** for critical design specifications (e.g., SU8/polyimide height, micro-sized via placement) by fine-tuning machines in high-stakes manufacturing processes.
- Manufactured micro-sized vias with **>95% landing accuracy** on silicone/polyimide substrates by controlling a laser engraving machine operated by low level machine language, which increased precision and reliability in flexible circuit fabrication.
- Achieved **>1 million** cycles of **reliability** testing on FPC-integrated coupons by conducting root cause and failure analyses with various destructive (e.g., cross-sectional image analysis) and non-destructive methods (e.g., X-ray or CT scan).

PROJECTS

HandPose (Ongoing): Hand pose recognition CNN model from images/videos using PyTorch.
- Automated data collection from videos taken using Intel RealSense Depth Camera D435 on Linux machine.
- Develops convolutional neural networks (CNN) to classify hand poses from source images or videos.

SmartReader (Link): Digital number reader built with Python and OpenCV.
- Achieved 99.8% accuracy in reading digital numbers from images within 100 seconds across 500 images.
- Preprocessed images using computer vision techniques like cropping, sharpening, gamma correction, erosion, and dilation for improved output quality.

Huake (Link): 3D geometry maze game developed using C/C++.
- Designed a 3D tetrahedral maze game with forward kinematics, collision detection, and texture mapping.
- Implemented collision detection and camera view rotation functionalities to enhance the user experience.

LEADERSHIP EXPERIENCE

Lab Safety Manager, *Soft Machines Lab*   June 2018 – January 2022
- Managed lab safety and operations for over 20 members, ensuring compliance with chemical safety protocols and project-specific requirements.

Mentorship, *Soft Machines Lab*   September 2020 – August 2022
- Mentored two graduate students, guiding them to successfully pursue Ph.D. programs at top-tier R1 universities.
- Supervised research projects, resulting in the publication of two high-impact peer-reviewed journal papers.