

Coraline (Xinying) Chu

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PROFESSIONAL SUMMARY

Ph.D. student in mechanical engineering at Cornell University, focused on point-of-care diagnostics and medical device development. Experienced in device prototyping, assay validation, and clinical data analysis, with growing exposure to market discovery and a strong interest in translating healthcare solutions toward commercialization for patient impact.

EDUCATION

Cornell University, Ithaca, NY

Degree: Doctor of Philosophy in Mechanical Engineering, Sept 2023 ~ expected May 2028

Johns Hopkins University, Baltimore, MD

Degree: Bachelor of Science in Biomedical Engineering, Sept 2019 ~ May 2023

EXPERIENCES

Erickson Lab - Ph.D. Student Researcher | Jan 2024 - Present

- Conducted a large-scale clinical validation trial with 1000+ patients on viral DNA-based Kaposi Sarcoma PoC diagnosis, achieving 95% sensitivity and 90% specificity. Managed sample logistics, assay validation, and statistical data analysis.
- Redesigned a portable point-of-care nucleic acid amplification device, updated PCB architecture, integrated sensor fusion for fluorescence and temperature monitoring, and optimized data processing software to reduce signal drift and improve reliability.
- NSF I-Corps Regional participant— conducted customer/stakeholder interviews across clinicians, labs, policy advisors; produced investment pitch decks used in fundraising outreach.

Johns Hopkins Hospital - Undergraduate Researcher | Sept 2021 – May 2023

- Co-led a student team to design and prototype a minimally invasive flexible endoscopic imaging system to assess the auditory tube for inspection and diagnosis.
- Team-developed a disposable distal attachment to provide transient lumen opening of 2 mm diameter (mean across n = 5 benchtop trials) and direct visualization of unobstructed field-of-view (FOV) of 80% within the captured frame. Outcomes and usability validated in ENT clinical workflow.

Harvard Biorobotics Lab - Undergraduate Researcher | Jun 2022 – Aug 2022

- Engineered a reproducible ultrasound + EMG analysis pipeline (MATLAB) for multi-DOF balance, combining automated muscle-architecture tracking with torque correlation.
- Created standardized inverter/everter imaging protocols to stabilize signal-to-noise ratio and reduce operator variance, enabling consistent datasets for downstream modeling.

SELECTED PUBLICATIONS

- Submitted to *Journal of Medical Virology*. Chu X, et al. Loop-Mediated Isothermal Amplification Enables Reliable Kaposi Sarcoma Diagnosis Across Time and Sites in East Africa.
- Manning, J.C., et al. Skin Biopsy Processing for Rapid Molecular Diagnosis and Histopathologic Interpretation: Application to Kaposi sarcoma in East Africa. *Infect Agents Cancer* Volume 20: 2025.

SKILLS

- Technical:** Assay development, device prototyping, clinical validation, hardware/software interfacing
- Programming & Data Analysis:** Python, MATLAB, C, statistical analysis, data visualization
- Tools & Platforms:** Git, Excel, ImageJ
- Soft Skills:** Team collaboration, market outreach, technical writing, scientific communication