

Ethan Wu

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Pittsburgh, Pennsylvania - 15213, United States

EDUCATION

- **Pitt/CMU MSTP Program** Aug 2024 – Present
MD: Pitt Medicine, PhD: CMU Computer Science Pittsburgh, Pennsylvania
- **Duke University** Aug 2018 – May 2022
Bachelor of Science: Mathematics Durham, North Carolina
 - GPA: 3.943/4.00
- **Thomas Jefferson High School for Science and Technology** Sep 2014 – June 2018
Secondary Education Alexandria, Virginia

PROFESSIONAL EXPERIENCE

- **McKinsey & Co.** July 2022 – May 2024
Senior Business Analyst (Consultant) Washington D.C.
 - Established and managed a \$100M+ data organization for a government health agency to combat emerging infectious diseases
 - Spearheaded the pricing and investment planning for a \$900M+ merger between major hospital provider systems

TEACHING, ENTREPRENEURSHIP, AND LEADERSHIP

- **CEO / Co-Founder, PIME** 2025 – Present
LLM-Powered Medical Education Platform University of Pittsburgh School of Medicine
 - Built and deployed the first LLM-based board prep tool adopted by the University of Pittsburgh School of Medicine, covering 269 high-yield Step 1 concepts with AI-driven curriculum mapping, spaced repetition, and adaptive practice questions
 - Designed and shipped full-stack platform serving medical students across multiple institutions
- **Course Instructor, Applied Machine Learning in Medicine** Summer 2025, Summer 2026
Professional Enrichment Course (PEC) University of Pittsburgh School of Medicine
 - Created and lead-instructed an 8-session hands-on summer intensive for medical students using the NIH All of Us research dataset ([Course Flyer](#))
 - Designed curriculum spanning Python, ML frameworks, healthcare data analysis, and a capstone clinical research project
- **Co-Founder, Pitt AI in Medicine Student Society (PittAIMS)** 2024 – Present
Student Organization University of Pittsburgh School of Medicine
 - Founded interdisciplinary student organization hosting coding workshops, journal clubs, and faculty research collaborations at the intersection of AI and clinical medicine (pittaims.com)
- **Lead Presenter, Vanscoy Winter Academy** 2026
Annual Health Sciences Symposium University of Pittsburgh Health Sciences
 - Selected as a lead presenter at the annual Vanscoy Winter Academy symposium for 300+ University of Pittsburgh Health Sciences alumni and supporters

GRANTS AND FELLOWSHIPS

- **Principal Investigator – Foresight: Eye Screening for Cancer Prevention** 2025
Pitt Un-Challenge (PUnCh), University of Pittsburgh – Named PI as an MD/PhD student \$25,000
 - Competitive high-risk, high-reward research award; selected as 1 of 12 winning teams from over 150 applicants
 - Developing AI-driven ophthalmic screening tools for early cancer detection
- **Genomics Fellow – AIM-AHEAD All of Us Training Program** 2025 – 2026
National Institutes of Health \$9,000
 - NIH-funded fellowship for AI/ML research using the All of Us genomics dataset; selected as 1 of 5 genomics fellows from approximately 500 applicants

- **Reviewer**, American Journal of Ophthalmology 2026 – Present
- **Reviewer**, Machine Learning for Health (ML4H) 2025 – Present

SELECTED PROJECTS

- **Novel Systemic Associations of iERM Identified via Machine Learning** *Ophthalmology Science*, 2026
Wu E, Jiang J, Hasan N, Du K, Zhang M, Vupparaboina KK, et al.
 - Employed clustering and supervised interpretable ML methods (PCA, GBDT, logistic regression) on 10,000+ All of Us patient records to identify four systemic comorbidity profiles associated with idiopathic epiretinal membrane, achieving predictive AUC >75%
- **Predicting Early-Onset AMD: A Machine Learning Approach** *Am. J. Ophthalmol.*, 2025
Wu E, Hasan N, Vupparaboina S, Jiang J, Du K, DeCicco J, Sadeghi E, et al.
 - Developed predictive ML models using UPMC and All of Us datasets achieving ~75% accuracy in predicting early-onset AMD through associations with hypertension, dyslipidemia, and inflammatory joint disorders
- **Patient-Specific Models of Treatment Effects in Tuberculosis** *ML4H*, 2024
Wu E, Ellington C, Lengerich B, Xing E
 - Introduced a sample-specific approach revealing how co-morbidities such as anemia and HIV interact with TB treatments using a contextualized generative ML framework on the TB Portals dataset
- **Epigenetic Conservation Identifies Essential Cancer Genes** *In Review – Genome Research*
Murgas K, Wu E, Ryser M, Shibata D
 - Applied elastic net ML to DNA methylation data to predict cancer drug dose responses, demonstrating how epigenetic conservation of essential genes can be leveraged for personalized treatment

PUBLICATIONS AND CONFERENCES

S=IN SUBMISSION, J=JOURNAL, C=CONFERENCE, T=THESIS

- [S.1] Wu E, Du K, Thomas T, Shin C, Jiang J, Navidzadeh J, Hasan N, Yao J, et al. (In review). **Neoplasms Associated with the Onset of Age-Related Macular Degeneration: A Case-Control Study Using the All of Us Cohort**. Manuscript in review.
- [S.2] Murgas K, Wu E, Ryser M, Shibata D. (In review). **Epigenetic Conservation Predicts Cancer Cell Line Drug Response**. *Genome Research*. Manuscript in review.
- [S.3] Yao J, Jiang J, Kao L, Hasan N, Navidzadeh J, Du K, Whitley J, Yang J, Thomas T, Sahel JA, Wu E[†], Chhablani J. (In review). **Predicting Age-Related Macular Degeneration Conversion through Systemic Comorbidities**. *JAMA Ophthalmology*. Manuscript in review. († = co-corresponding author)
- [J.1] Wu E, Jiang J, Hasan N, Du K, Zhang M, Vupparaboina KK, Bollepalli SC, Sahel JA, Chhablani J. **Novel Systemic Associations of Idiopathic Epiretinal Membrane Identified via Machine Learning**. *Ophthalmology Science*. 2026.
- [J.2] Wu E, Hasan N, Vupparaboina S, Jiang J, Du K, DeCicco J, Sadeghi E, et al. **Predicting Early Onset of Age-Related Macular Degeneration: A Machine Learning Approach**. *American Journal of Ophthalmology*. July 2025.
- [J.3] Du K, Doshi U, DiCenzo B, Jiang J, Wu E, Gadari A, Vupparaboina SC, et al. **Benchmarking Diffusion Models Against State-of-the-Art Architectures for OCT Fluid Biomarker Segmentation**. *PLoS One*. 2025.
- [J.4] Ryser MD, Greenwald MA, Monyak D, Sorribes IC, King L, Hall A, Wu E, et al. **Spatially Discontinuous Mutation Topographies in Ductal Carcinoma In Situ Reveal Noncompetitive Growth Dynamics**. *Cancer Research*. 2025.
- [J.5] Falcinelli SD, Cooper-Volkheimer AD, Semenova L, Wu E, et al. **Impact of Cannabis Use on Immune Cell Populations and the Viral Reservoir in People with HIV on Suppressive Antiretroviral Therapy**. *The Journal of Infectious Diseases*. 2023.
- [J.6] Liu H, Xu J, Yang Y, Wang X, Wu E, et al. **Oncogenic HPV Promotes the Expression of the Long Noncoding RNA Inc-FANCI-2 Through E7 and YY1**. *PNAS*. 2021. DOI: 10.1073/pnas.2014195118.
- [C.1] Wu E, et al. (2026). **Blood Marking for iERM Detection**. ARVO 2026 (Poster).
- [C.2] Navidzadeh J, Wu E, et al. (2026). **Interpretable AI Screening of Systemic Diseases Using All of Us Ophthalmic Data**. ARVO 2026 (Poster).
- [C.3] Du K, Wu E, et al. (2026). **Eye Conditions to Screen for Bipolar Disorder**. ARVO 2026 (Poster).
- [C.4] Chiang C, Wu E, et al. (2026). **Anti-Inflammatory Medication for AMD Onset**. ARVO 2026 (Poster).

- [C.5] Thomas T, Wu E, et al. (2026). **Eye Disorders Associated with Dental Caries**. ARVO 2026 (Poster).
- [C.6] Yao J, Wu E, et al. (2026). **Systemic Comorbidities for AMD Progression**. ARVO 2026 (Poster).
- [C.7] Liu C, Wu E, et al. (2026). **Statins and Hypertensive Medication for AMD Onset**. ARVO 2026 (Poster).
- [C.8] Wu E, Hasan N, Vupparaboina SC, Jiang JY, DeCicco J, et al. (2025). **Identifying Key Co-Morbidities for Predicting Early-Onset AMD Using Machine Learning**. ARVO 2025. May 4, 2025 (Poster).
- [C.9] Wu E, et al. (2025). **Neoplasms Associated with Age-Related Macular Degeneration**. 7th Biennial International Symposium on AMD (Poster).
- [C.10] Zhang M, Yao J, Jiang J, Wu E, Du K, Hasan N, Sahel JA, Chhablani J. (2025). **Investigating the Role of Social Determinants of Health in AMD Using Machine Learning**. Digital Health Summit 2025 (Abstract).
- [C.11] Woolley B, Wu E, Walter H, Koenigshoff M, Kliment C. (2025). **Machine Learning-Based Prediction of Idiopathic Pulmonary Fibrosis Using the All of Us Dataset**. Digital Health Summit 2025 (Abstract).
- [C.12] Kerr D, Wu E, Grubisha M. (2025). **Predicting Post-Diagnostic Cognitive Impairment in Patients with Schizophrenia Using Interpretable ML**. Digital Health Summit 2025 (Abstract).
- [C.13] Wu E, Pantanowitz J. (2025). **Innovative AI-Driven Learning Approaches for Medical Education**. Invited Faculty Workshop. Pitt Med Curriculum Colloquium 2025. Feb 6, 2025 (Oral).
- [C.14] Wu E, Ellington C, Lengerich B, Xing E. (2024). **Sample-Specific Models of Treatment Effects Explain Heterogeneity in Tuberculosis**. ML4H 2024 (Poster).
- [C.15] Wu E, Kontos C. (2021). **Analyzing the Interactions of Caskin2 and Endothelial Tie Receptors**. Visible Thinking Seminar. April 21, 2021 (Poster).
- [C.16] Ryser M, Sorribes I, Greenwald M, Wu E, et al. (2020). **Inferring the Evolutionary Dynamics of DCIS Through Multi-Regional Sequencing**. AACR Virtual Special Conference. November 1, 2020 (Oral).
- [C.17] Wu E, Liu H, Zheng Z. (2018). **Papillomavirus Regulates the Expression of Host Long Non-coding RNAs**. NIH Summer Poster Day, Bethesda, MD. August 19, 2018 (Poster).
- [C.18] Yee A, Patel M, Wu E, et al. (2016). **iDr: An Intelligent Digital Ruler App for Remote Wound Assessment**. IEEE CHASE. June 27, 2016 (Poster).
- [T.1] Wu E, Reed M. (2022). **Mathematical Modeling of TIE1 and Endothelial Metabolism**. Senior Thesis, Durham, NC. April 26, 2022 (Oral).

RESEARCH EXPERIENCE

- **Chhablani Lab** *November 2024 – Present*
ML Research Fellow UPMC Eye Center
 - Published interpretable ML models in *Ophthalmology Science* (2026) and *American Journal of Ophthalmology* (2025) identifying systemic comorbidities in iERM and predictors of early-onset AMD using All of Us and UPMC datasets
 - Lead a research subgroup focused on ML-driven screening for underrepresented eye disorders using the NIH All of Us dataset
- **Xing Lab** *June 2024 – Present*
ML Research Fellow Carnegie Mellon University
 - Developed contextualized ML models for TB treatment heterogeneity (ML4H 2024) and precision sarcoma treatment identification
- **Rudin Laboratory** *January 2022 – August 2022*
Undergraduate Researcher Duke University
 - Built ML models for HIV reservoirs using flow cytometry data, establishing a negative association between reservoir size and marijuana use
- **Ryser Laboratory** *April 2020 – July 2022*
Undergraduate Researcher Duke University
 - Constructed predictive ML models using DNA methylation data and computational models for cancer recurrence dynamics
- **Kontos Laboratory** *September 2018 – May 2022*
Undergraduate Researcher Duke University
 - Discovered a key phosphorylative target for kinase receptor Tie1, contributing to a successful R01 Grant proposal
- **National Institutes of Health** *June 2017 – December 2018*
Research Fellow Frederick, MD
 - Investigated the role of long non-coding RNAs in HPV-mediated cervical carcinogenesis (PNAS 2021)

HONORS AND AWARDS

- **Duke University Nominee for Rhodes and Marshall Scholarship**

October 2023

Duke University

- Nominated for two of the most prestigious international scholarships for graduate study in the UK

- **Phi Beta Kappa**

May 2022

Duke University

- Recognized for outstanding academic achievement, awarded to the top 2 percent of the graduating class

- **Graduation with Distinction**

April 2022

Duke University, Department of Mathematics

- Awarded for exceptional academic achievement and completion of an original research thesis

ADDITIONAL INFORMATION

Technical Skills: Python, PyTorch, scikit-learn, pandas, NumPy, R, Java, Git, \LaTeX , Linux/Unix

Interests: Duke Basketball, Fantasy Football, Cooking, Waffle House, Avalon, Survivor, Indomie Ramen