Kumar Thurimella

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Education

University of Cambridge — Cambridge, UK
Ph.D. in Biotechnology and Applied Statistics — Oct 2020–May 2024

- Advisors: Sergio Bacallado PhD (Stats Lab/Cambridge), Ramnik J. Xavier MD/PhD (Broad Institute/Harvard Medical School)
- Thesis: "Harnessing Deep Learning with Protein Language Models to Unveil Microbial Enzyme Function in Health and Disease"

University of Colorado, School of Medicine — Denver, CO
M.D. Candidate, Advisor: Cathy Lozupone PhD — Aug 2018–May 2026

University of Cambridge — Cambridge, UK
M.Phil. in Computational Biology (Biological Sciences), Advisor: Gosia Trynka PhD — Oct 2017–Aug 2018

- Thesis: "Evaluating the Efficacy of Epigenetic Imputation in CD4+ Regulatory T Cells"

University of Colorado, Boulder — Boulder, CO
B.S. in Applied Mathematics, *Magna Cum Laude*, Advisor: Rob Knight PhD — Aug 2009–Aug 2013

- Thesis: "Using Rule Induction to Elucidate Co-Occurrence Patterns in Microbial Data"

Experience

Uber Technologies — San Francisco, CA
Software Engineer II — Mar 2015–Aug 2017

- Using a heuristic recursive backtracking algorithm, built an auto-scheduler to schedule all incoming candidates for Uber, that sits atop our own custom Applicant Tracking System
- Python, Flask, Tornado, React.js

ThoughtWorks — San Francisco, CA
Junior Software Developer — Apr 2014–Mar 2015

- Developed software as a consultant, building and maintaining web applications for clients
- Java, Spring

Publications

[1] **K. Thurimella**, C. Li, D. B. Graham, R. M. Owens, C. L. Sokol, D. R. Plichta, R. J. Xavier, and S. Bacallado, "Identifying putative microbial protease allergens through protein language model-guided homology", Feb. 2024, *In Prepartion*.

[2] **K. Thurimella**, A. M. Mohamed, D. B. Graham, R. M. Owens, S. L. La Rosa, D. R. Plichta, S. Bacallado, and R. J. Xavier, "Protein language models uncover carbohydrate-active enzyme function in metagenomics", *bioRxiv*, Jan. 2024, *Under Review at Genome Biology*.

[3] C. Li, M. Stražar, A. M. T. Mohamed, J. A. Pacheco, R. L. Walker, T. Lebar, S. Zhao, J. Lockart, A. Dame, **K. Thurimella**, ..., S. Y. Shaw, D. R. Plichta, and R. J. Xavier, "Gut microbiome and metabolome profiling in framingham heart study reveals cholesterol-metabolizing bacteria linked with lower cardiovascular risk", *Cell*, Mar. 2024, *In Press*.

[4] **K. Thurimella**, **M. Shaffer**, J. D. Sterrett, and C. A. Lozupone, "Scnic: Sparse correlation network investigation for compositional data", *Molecular Ecology Resources*, vol. 23, no. 1, pp. 312–325, Jan. 2023, *Joint first authors with equal contributions.*

[5] V. Stoeger, **K. Thurimella**, S. Kirma, I. Niewczas, E. Parlar, E. Schaudy, A. Wheeters, C. Moysidou, J. Lietard, J. Clark, C. Gerner, and R. Owens, "Pedot:pss technology for nutritional research –testing the dietary-compound butyrate for validating a bioelectronic gut-on-chip model in comparison to a conventional 2d model", May 2023, *In Prepartion.*

[6] L. Wells, **K. Thurimella**, and S. Bacallado, "Regularised canonical correlation analysis: Graphical lasso, biplots and beyond", *Journal of the Royal Statistical Society, Series B (Statistical Methodology)*, Oct. 2023, *In Prepartion.*

[7] M. Shaffer, **K. Thurimella**, K. Quinn, K. Doenges, X. Zhang, S. Bokatzian, N. Reisdorph, and C. A. Lozupone, "Amon: Annotation of metabolite origins via networks to integrate microbiome and metabolome data", *BMC bioinformatics*, vol. 20, no. 1, pp. 1–11, Nov. 2019.

Presentations

- Kumar Thurimella, Chenhao Li, Ahmed M. T. Mohamed, Daniel B. Graham,Roisin Owens, Sabina Leanti La Rosa, Caroline L. Sokol, Damian Plichta, Sergio Bacallado, Ramnik Xavier, Identifying Putative Microbial Enzyme Candidates Linked with Allergy and Glycobiology through Protein Language Model-Guided Homology, Keystone Symposia Microbiota and Cancer Immunity 2024
- Kumar Thurimella, Roisin Owens, Damian Plichta, Sergio Bacallado, , Ramnik Xavier, Protein Language Models Uncover Carbohydrate Active Enzyme Function in the Microbiome (Oral), Cambridge CEB Conference 2023
- Kumar Thurimella, Michael Shaffer, Cathy Lozupone, Employing Metabolomics and Microbiome Data to Build Algorithm for Interrogating Host-Microbe Interactions (Oral), National MD/PhD Conference 2020
- Kumar Thurimella, Michael Shaffer , Cathy Lozupone, Employing Metabolomics and Microbiome Data to Build Algorithm for Interrogating Host-Microbe Interactions (Oral), Western Medical Research Conference, Carmel, CA 2020
- Kumar Thurimella, Lara Bossini-Castillo, Gosia Trynka, Using ChromImpute to Recover Lost Epigenetic Signal in Rare Immune Cells (Oral), Sanger Institute Research Forum, Hinxton, UK 2018
- Kumar Thurimella, Fang Liu, Applying a Recursive Backtracking Heuristic to Solve Scheduling Problems (Oral) Uber Technology Talk, San Francisco, CA 2017

Scholarships and Awards

- Keystone Symposia Future of Science Scholarship ($1,200) 2024
- Gates Cambridge Scholarship (£48,313/year) 2020–2024
  - Combining Maths and Medicine
  - CU Medical Student Wins $250,000 Scholarship
  - Kumar Thurimella Awarded Gates-Cambridge Scholarship | Applied Mathematics
- Rotary International Scholarship ($30,000) 2020–2024
- Dr. Henry Christian Award, American Federation for Medical Research - Most Outstanding Abstract 2019
- Cambridge University Entrepreneurs Competition Finalist 2018
- Wellcome Trust Departmental Award Full Scholarship, University of Cambridge (£39,029/year) 2017
- Norlin Scholars Scholarship ($4,000/year) 2011–2013
- Engineering Merit Scholarship ($2,000/year) 2009–2013
- National Institute of Standards and Technology (NIST) Prep Scholarship (Full Tuition + Stipend) 2010–2011