Puneet Velidi

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Education

University of Victoria — Victoria, BC
MSc in Statistics (thesis-based, fully-funded) — *Jan. 2025 – Dec. 2026*
Co-supervisors: Prof. Farouk Nathoo & Prof. Michelle Miranda
Committee members: Tanya Garcia, Maryclare Griffin, and Enrico Amico | External examiner: Jörn Diedrichsen

Thesis: *Methods for Censored Covariates, Spatial Transcriptomic Data and Neural Manifolds*. Oral examination

Cornell University — Ithaca, NY
BA in Statistics & Economics — *Sep. 2018 – Dec. 2022*

Publications (†indicates joint first authorship)

Puneet Velidi, Maryclare Griffin, Juxin Liu, Brian Richardson, Jing Qian, Roland Matsouaka, Sujit Ghosh, Tanya Garcia, Farouk Nathoo. *SPARTACCUS: Semiparametric Bayesian Proportional Hazards Model with a Censored Covariate in Huntington's Disease.* **In preparation**, 2026.

Puneet Velidi, Zhengxiao Wei, Farouk Nathoo. *Covariance Nonstationarity is Evident in Spatial Transcriptomics and Provides a New Categorization of Spatially Varying Genes.* **Under review**, 2026. bioRxiv

Puneet Velidi, Michelle Miranda, Farouk Nathoo, Ashery Mbilinyi, Cédric Beaulac. *Shape Analysis as an Inductive Bias for Glioma Grading from Tumor Contours.* **Submitted for publication**, 2026. arXiv

Puneet Velidi, Enrico Amico, Farouk Nathoo, Michelle Miranda. *Neural manifold connectomics reveals multiregime functional connectivity.* **Under review**, 2026. bioRxiv

Yimeng Liu, Céline M. Laumont, Shreena Kalaria, **Puneet Velidi**, Zhengxiao Wei, Brad H. Nelson, and Farouk S. Nathoo. *SPaCeD uses spatial point process distances to pair heavy and light chains of B cell receptors from spatial BCR-seq.* **Submitted for publication**, 2026.

Fabio Luchese, **Puneet Velidi**, . . . , Paolo Cassano. *Transcranial Photobiomodulation on Language and Cognitive Performance in Down Syndrome: A Pilot Randomized Sham-Controlled Trial.* **Under review**, 2026. medRxiv

B. Ferreras, . . . , **P. Velidi**, et al., P. Cassano. *Transcranial Photobiomodulation in Bipolar Disorder: A Case Series on Executive Skills and fMRI BOLD Signal.* **Submitted for publication**, 2026. SSRN

Guillermo Gonzalez-Garibay, **Puneet Velidi**, Akila Weerasekera, Nikos Makris, Carlos Lohmann, Katherine Anne Collins, Naomi Gaggi, Dan Vlad Iosifescu, Paolo Cassano. *Volumetric Changes Induced by Transcranial Photobiomodulation Therapy in Major Depressive Disorder: An Exploratory Neuroimaging Study.* **Submitted for publication**, 2026. SSRN preprint

Puneet Velidi†, Zhengxiao Wei†, Shreena N. Kalaria, Yimeng Liu, Céline M. Laumont, Brad H. Nelson, Farouk S. Nathoo. *Generalized Jeffreys's Approximate Objective Bayes Factor: Model-Selection Consistency, Finite-Sample Accuracy, and Statistical Evidence in 71,126 Clinical Trial Findings.* **Revise and resubmit (R&R)**, 2025. arXiv

S. Parker Singleton†, **Puneet Velidi**†, Louisa Schilling, Andrea I. Luppi, Keith Jamison, Linden Parkes, Amy Kuceyeski. *Altered structural connectivity and functional brain dynamics in individuals with heavy alcohol use elucidated via network control theory.* **Biological Psychiatry: Cognitive Neuroscience and Neuroimaging**, 2024. Link

Scholarships, Awards, Recognitions

2026 **University of Victoria** — FGS Travel Award — *600 CAD*
Travel support for Bayesian Methods for the Social Sciences III at University College Dublin, Ireland, December 9–11, 2026; accepted poster, *Further developments of generalized Jeffreys's approximate Bayes factor.*

2026 **ICSA-Canada Chapter** — Student/Postdoc Travel Scholarship Award — *600 CAD*
This award supports travel expenses for the International Chinese Statistical Association – Canada Chapter 2026 Symposium in Montreal.

2025	**Labs4** — Technology Readiness Level-Up (TRLˆ) Fellowship Lab-to-market grant; ChimeraML, combinatorial nanobody design with an ensemble of protein ML models for immune checkpoint inhibitor therapy. Funded by Mitacs, New Ventures BC, and BCIT. Labs4 TRLˆ Pitch Competition, BC Region, *2nd place*.	*15,000 CAD*
2025	**University of Victoria** — Betty & Gilbert Kennedy Graduate Scholarship in Math. & Stats. Awarded to academically outstanding students in the Department of Mathematics and Statistics upon the recommendation by the department (*Donor Award*).	*5,130 CAD*
2025	**Maud Menten Institute/PIMS** — Research Accelerator Award This award supports a collaboration with the MGH Photobiomodulation Lab on Bayesian analysis of the TransPhoM-DS clinical trial.	*5,000 CAD*
2025	**University of Victoria** — FGS Graduate Fellowship (Master's) This fellowship is awarded to students of high academic standing upon recommendation by their department. *The typical M&S FGS Master's Fellowship is 2,500 CAD.*	*5,000 CAD*
2025	**University of Victoria** — FGS Travel Award & CUPE Conference Award These awards supported travel expenses for CNS 2025.	*1,050 CAD*
2025	**3MC–PIMS–IDMS–ICMS** — Summer School Supported Participant This recognition supported travel expenses + room and board for the two-week 2025 3MC–PIMS–IDMS–ICMS Summer School.	—
2025	**Maud Menten Institute/PIMS** — MMI HQP Summit Supported Participant This recognition supported travel expenses + room and board for the 2025 MMI HQP Summit.	—

Competitions

2026	**Y Combinator (P26)** Selected for an in-person interview in San Francisco out of 80k applications (approx. top 2.5%).	—
2026	**Critical Ops: A DC National Security Hackathon** (spon. OpenAI, Meta, Squadra Ventures) **1st place out of 166 participants**, ENEL (drone swarm 3D Gaussian Splat). Won demo opportunities with **OpenAI** and **Meta**.	—
2026	**SCSP AI+ Expo Hackathon** **2nd place out of 200+ participants**, 1st place DC region, Electrical Grid Track. Franklin, IoT grid sound anomaly detection & agent-to-agent load negotiation.	*5,000 USD*
2026	**Stanford University RNA 3D Folding Competition** Placed in the top 3% of 1,867 teams; **Silver Medal**.	—

Presentations

Oral Presentations

Brain Fingerprinting of Principal-component derived fMRI BOLD functional connectivity. The 7th ICSA-Canada Chapter Symposium, August **2026**. Montreal, QC. Invited Talk, **Invited Session Chair**.

A Bayesian Semiparametric Model for Survival Analysis with a Right Censored Covariate. 9th International Conference on Econometrics and Statistics, August **2026**. Kyoto, JP. Co-author of invited talk.

A Bayesian Semiparametric Model for Survival Analysis with a Right Censored Covariate. 2026 Statistical Society of Canada Annual Meeting, May **2026**. Hamilton, ON. Contributed Talk.

"Applications of Protein Folding Models in Immunotherapeutic Research." UBC Math Bio Seminar, January **2026**. Invited Seminar.

"70,000 Leagues Under the Sea of p-Values." Maud Menten Institute / Mathematical and Statistical Biology Seminar, October **2025**. Invited Seminar.

"70,000 Leagues Under the Sea of p-Values." UBC Stats Seminar, October **2025**. Invited Seminar.

Statistical methods for censored covariates. 2025 WNAR/IMS Annual Meeting, June **2025**. Whistler, BC. Co-author of discussant remarks for invited session.

"Network Control Theory in Neuroscience: Characterizing the Brain's Energy Landscape." Cognition and Brain Sciences Seminar, University of Victoria, March **2025**. Invited Seminar.

"Network Control Theory in Neuroscience: Characterizing the Brain's Energy Landscape." Maud Menten Institute / Mathematical and Statistical Biology Seminar, University of Victoria, February **2025**.

Poster Presentations

Further developments of generalized Jeffreys's approximate Bayes factor. Bayesian Methods for the Social Sciences III, University College Dublin, Ireland, December 9–11, **2026**. Accepted poster (upcoming).

Cardiac and Neurological Characterization of Friedreich's Ataxia: An Exploratory Analysis of a Hispanic Cohort. International Congress for Ataxia Research (ICAR), Atlanta, GA, November 10–13, **2026**. Poster

Acute Effects of Transcranial Photobiomodulation On Glymphatic CSF Dynamics in Two Patients with Amnestic Mild Cognitive Impairment or Early Alzheimer Disease. Clinical Research Day, Mass General Brigham, October 30, **2026**. Virtual poster presentation.

A Bayesian Semiparametric Model for Survival Analysis with a Right Censored Covariate. The 7th ICSA-Canada Chapter Symposium, August **2026**. Montreal, QC.

Bayesian Analysis of the TransPhoM-DS Clinical Trial. Organization for Human Brain Mapping 2026 Annual Meeting, June **2026**. Bordeaux, FR.

Ahab's Harpoon: Calibrated irreplicability detection with approximate objective Bayes factors. 2026 Statistical Society of Canada Annual Meeting, May **2026**. Hamilton, ON.

Reassessing the Statistical Evidence in Clinical Trials with Extended Approximate Objective Bayes Factors. Maud Menten Institute 2025 HQP Summit and Working Group Meetings, July **2025**. Edmonton, AB.

Photobiomodulation therapy-induced volumetric brain changes on patients with depression. Cognitive Neuroscience Society 2025 Annual Meeting, March **2025**. Boston, MA.

Altered structural connectivity and functional brain dynamics in individuals with heavy alcohol use elucidated via network control theory. Organization for Human Brain Mapping 2024 Annual Meeting, June **2024**. Seoul, SK.

Network control analysis of individuals with substance use disorder. Organization for Human Brain Mapping 2023 Annual Meeting, July **2023**. Montreal, QC.

Research Experience

Graduate Researcher — Victoria, BC

University of Victoria — Department of Mathematics and Statistics — *Jan. 2025 – Present*
Nathoo Lab, PI: Prof. Farouk Nathoo & Prof. Michelle Miranda

Visiting Researcher — Birmingham, UK

University of Birmingham — School of Mathematics — *Aug. 2025*
AMICO Lab, PI: Prof. Enrico Amico

Postbacc Researcher — Boston, MA

Harvard Medical School & MGH — Division of Neuropsychiatry and Neuromodulation — *May 2024 – Dec. 2024*
MGH Photobiomodulation Laboratory, PI: Prof. Paolo Cassano

- Statistical analysis of TransPhoM-DS, TRIADE, TPEB, TRAP-AD clinical trials.

Undergraduate Researcher — Ithaca, NY

Weill Cornell Medicine — Department of Radiology — *Jan. 2022 – Dec. 2022*
Computational Connectomics Laboratory, PI: Prof. Amy Kuceyeski

Professional Experience

Founder Vancouver, BC & Washington, DC

ChimeraML — TRL Level-Up (Labs4) Fall 2025 Cohort *Sept. 2025 – Present*

- Combinatorial nanobody design using an ensemble of protein ML models for immune checkpoint inhibitor therapy. White paper available upon request.

Software Engineer II Bentonville, AR

Walmart Global Tech — EBS *Feb. 2023 – May 2024*

- *Early Career Recognition*, awarded to <10% of 2023 Walmart Global Tech Development Program.

AI/ML & NextGen Analytics Intern New York, NY

Memorial Sloan Kettering Cancer Center — DigITs *June 2022 – Aug. 2022*

Teaching Experience

Teaching Assistant Victoria, BC

University of Victoria — Department of Mathematics and Statistics *Jan. 2025 – April 2025*

Math Support Center Tutor Ithaca, NY

Cornell University — Department of Mathematics *Sep. 2021 – Dec. 2022*

Workshops and Short Courses

BIRS Workshop: A Roadmap towards Developing Mechanobiochemical Models for Single and Collective Cell Migration through Complex Non-Isotropic Environments. *Banff International Research Station (BIRS), Banff, AB.* May 10–15, **2026**.
Five-day invited workshop on 2- and 3-D mechanobiochemical models of single and collective cell migration.

eScience JASP Hackathon. *Netherlands eScience Center, Amsterdam, NL.* February 16–17, **2026**.
Developed a JASP module alongside the core JASP programming team.

3MC–PIMS–IDMS–ICMS Summer School on Quantitative Molecular and Cellular Biology. *University of Manitoba, Winnipeg, MB.* June 16–27, **2025**.
Two-week school on quantitative methods for structural, molecular, and cellular biology, using cancer as an integrative example.

Technical Reports

Computational Design of Cross-Reactive Nanobodies Targeting the Human Chemokine Receptor Family. ChimeraML, **2026**. *Available upon request.*

Immunodynamic Modeling in Melanoma and Gastric Cancer. Supervised by Kang-Ling Liao and Michael Chan. 3MC–PIMS–IDMS–ICMS Summer School on Quantitative Molecular and Cellular Biology, **2025**.

Professional Service

BMC Medical Research Methodology, Reviewer

Network Neuroscience, Reviewer

Human Brain Mapping, Reviewer (with Supervisor)

JASA Applications and Case Studies, Reviewer (with Supervisor)