Puneet Velidi

Statistical AI/ML Researcher · Founder, ChimeraML

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Education

University of Victoria — **Victoria, BC**
M.Sc. in Statistics (thesis-based, fully funded) — *Jan. 2025 – Dec. 2026*
Co-supervisors: Prof. Farouk Nathoo & Prof. Michelle Miranda. Thesis: *Methods for Censored Covariates, Spatial Transcriptomic Data and Neural Manifolds*.

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

Publications († joint first authorship)

P. Velidi, M. Miranda, F. Nathoo, A. Mbilinyi, and C. Beaulac. *Shape Analysis as an Inductive Bias for Glioma Grading from Tumor Contours*. *Submitted for publication*. **2026**. arXiv

P. Velidi, E. Amico, F. Nathoo, and M. Miranda. *Neural manifold connectomics reveals multiregime functional connectivity*. **Under review**. **2026**. bioRxiv

P. Velidi, M. Griffin, J. Liu, et al., F. Nathoo. *SPARTACCUS: Semiparametric Bayesian Proportional Hazards Model with a Censored Covariate in Huntington's Disease*. **In preparation**. **2026**.

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

Y. Liu, C. M. Laumont, S. Kalaria, **P. Velidi**, Z. Wei, B. H. Nelson, and F. 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**.

F. Luchese, **P. Velidi**, et al., P. 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

G. Gonzalez-Garibay, **P. Velidi**, et al., P. Cassano. *Volumetric Changes Induced by Transcranial Photobiomodulation Therapy in Major Depressive Disorder: An Exploratory Neuroimaging Study*. *Submitted for publication*, 2026. SSRN preprint

P. Velidi†, Z. Wei†, et al., F. 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. P. Singleton†, **P. Velidi**†, et al., A. 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**.

Academic Awards & Scholarships

Labs4 Technology Readiness Level-Up Fellowship — 15,000 CAD (2025).
Maud Menten Institute / PIMS Research Accelerator Award — 5,000 CAD (2025).
UVic Betty & Gilbert Kennedy Graduate Scholarship in Mathematics & Statistics — 5,130 CAD (2025-2026).
UVic FGS Graduate Fellowship, Master's — 5,000 CAD (2025-2026).
UVic FGS Travel Award — 600 CAD (2026). Bayesian Methods for the Social Sciences III, Dublin.
ICSA-Canada Student/Postdoc Travel Scholarship Award — 600 CAD (2026). 7th ICSA-Canada Chapter Symposium, Montreal.
UVic FGS Travel Award & CUPE Conference Award — 1,050 CAD (2025). Combined travel support for the Cognitive Neuroscience Society Annual Meeting, Boston.

Competition Highlights

1st place, Critical Ops DC National Security Hackathon (166 participants), ENEL; **2nd overall, SCSP AI+ Expo** (200+ participants), Franklin: DC region and Electrical Grid Track winner, 5,000 USD.
Silver Medal, Stanford RNA 3D Folding Competition: top 3% of 1,867 teams.
2nd, Labs4 TRL Pitch Competition, BC region.

Selected Industry Experience

Founder — ChimeraML — **Vancouver, BC & Washington, DC**
Deeptech research studio — *Sept. 2025 – Present*
- Backed by NVIDIA Inception, Labs4, and Mitacs.

Software Engineer II — Walmart Global Tech — **Bentonville, AR**
Enterprise Business Services – Associate Digital Experience — *Feb. 2023 – May 2024*
- Early Career Recognition, awarded to <10% of the 2023 Walmart Global Tech Development Program.

Research Experience

Graduate Researcher — University of Victoria, Dept. of Mathematics & Statistics — **Victoria, BC**
Nathoo Lab, PIs: Prof. Farouk Nathoo & Prof. Michelle Miranda — *Jan. 2025 – Present*

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

Postbacc Researcher — Harvard Medical School & MGH, Neuropsychiatry & Neuromodulation — **Boston, MA**
MGH Photobiomodulation Laboratory, PI: Prof. Paolo Cassano — *May 2024 – Dec. 2024*
- Statistical analysis of the TransPhoM-DS, TRIADE, TPEB, and TRAP-AD clinical trials.

Undergraduate Researcher — Weill Cornell Medicine, Dept. of Radiology — **Ithaca, NY**
Computational Connectomics Laboratory, PI: Prof. Amy Kuceyeski — *Jan. 2022 – Dec. 2022*

Peer Review & Technical Report

Reviewer: BMC Medical Research Methodology; Network Neuroscience; Human Brain Mapping and JASA Applications & Case Studies (with supervisor).
R. Adenane, J. Beaudin, L. Kankanamge, and **P. Velidi**. *Immunodynamic Modeling in Melanoma and Gastric Cancer*. **2025**.

Talks and Sessions

Brain Fingerprinting of Principal-component derived fMRI BOLD functional connectivity.
7th ICSA-Canada Chapter Symposium, Montreal, August 2026. Invited talk and invited session chair.

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

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

Applications of Protein Folding Models in Immunotherapeutic Research.
UBC Mathematics Biology 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 Statistics Seminar, October 2025. Invited seminar.

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

Conference Abstracts and Posters

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. Poster.

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

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

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

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

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

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

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