Vu Dinh

CONTACT INFORMATION	Department of Mathematical Sciences University of Delaware Newark, Delaware, US.	*Phone:* 1-765-237-8876 *Email:* vucdinh@udel.edu *Website:* vucdinh.github.io

RESEARCH INTERESTS

Computational biology: statistical methods in evolutionary biology; uncertainty quantification, experimental design and control of biological systems

Machine learning: learning with non-iid data; active and fast-rate learning

EMPLOYMENT

Assistant Professor
Department of Mathematical Sciences
University of Delaware, Newark, Delaware, US.
August 2017 – present

Postdoctoral Research Fellow
Fred Hutchinson Cancer Research Center, Seattle, Washington, US.
January 2015 – July 2017

EDUCATION

2014 **Purdue University**, West Lafayette, Indiana, US
Ph.D. in Mathematics

2009 **Université d'Orléans**, Orléans, France
M.S. in Applied Mathematics, 2009

2008 **University of Science**, Ho Chi Minh City, Vietnam
B.S. in Mathematics and Computer Science

JOURNAL PUBLICATIONS

1. Vu Dinh, Aaron E. Darling and Frederick A. Matsen IV (2017).
Online Bayesian phylogenetic inference: theoretical foundations via Sequential Monte Carlo.
Systematic Biology.

2. Mathieu Fourment, Brian C. Claywell, Vu Dinh, Connor McCoy, Frederick A. Matsen IV and Aaron E. Darling (2017).
Effective online Bayesian phylogenetics via Sequential Monte Carlo with guided proposals.
Systematic Biology.

3. Brian C. Claywell, Vu Dinh, Mathieu Fourment, Conner O. McCoy and Frederick A. Matsen IV (2017).
A surrogate function for one-dimensional phylogenetic likelihoods.
Molecular Biology and Evolution.

4. Owen G. Rehrauer, Vu Dinh, Bharat R. Mankani, Gregery T. Buzzard, Bradley Lucier and Dor Ben-Amotz (2017).
Binary-complementary compressive filters for Raman spectroscopy.
Journal of Applied Spectroscopy.

5. Vu Dinh*, Lam Si Tung Ho*, Marc A. Suchard and Frederick A. Matsen IV (2017).
   Consistency and convergence of phylogenetic inference with species tree regularization.
   The Annals of Statistics.

6. Vu Dinh and Frederick A. Matsen IV.
   The shape of the one-dimensional phylogenetic likelihood function.
   The Annals of Applied Probability 27.3 (2017): 1646-1677.

7. Ankush Chakrabarty, Vu Dinh, Martin Corless, Ann E. Rundell, Stanislaw H. Zak and Gregery T. Buzzard.
   SVM-informed explicit nonlinear model predictive control using low-discrepancy sequences.
   IEEE Transactions on Automatic Control 62.1 (2017): 135-148.

8. Vu Dinh, Ann E. Rundell and Gregery T. Buzzard.
   Convergence of Griddy Gibbs sampling and other perturbed Markov chains.
   Journal of Statistical Computation and Simulation 87.7 (2017): 1379-1400.

9. Vu Dinh, Ann E. Rundell and Gregery T. Buzzard.
   Experimental design for dynamic identification of cellular processes.
   Bulletin of Mathematical Biology 76.3 (2014): 597-626.

10. Vu Dinh, Ann E. Rundell and Gregery T. Buzzard.
    Effective sampling schemes for behavior discrimination for nonlinear models.
    International Journal for Uncertainty Quantification 4.6 (2014): 535-554.

PEER-REVIEWED
CONFERENCES

1. Vu Dinh*, Arman Bilge*, Cheng Zhang* and Frederick A. Matsen IV.
   Probabilistic path Hamiltonian Monte Carlo.
   International Conference on Machine Learning (ICML 2017).

2. Vu Dinh, Lam Si Tung Ho, Binh T. Nguyen and Duy Nguyen.
   Fast learning rates with heavy-tailed losses.
   Advances in Neural Information Processing Systems (NIPS 2016).

3. Vu Dinh*, Lam Si Tung Ho*, Nguyen Viet Cuong, Duy Nguyen and Binh T. Nguyen.
   Learning from non-iid data: fast rates for the one-vs-all multiclass plug-in classifiers.
   Theory and Applications of Models of Computation (TAMC 2015).

4. Ankush Chakrabarty, Vu Dinh, Gregery T. Buzzard, Stanislaw H. Zak and Ann E. Rundell.
   Robust explicit nonlinear model predictive control with integral sliding mode.
   American Control Conference (ACC 2014).

5. Nguyen Viet Cuong, Lam Si Tung Ho and Vu Dinh.
   Generalization and robustness of batched weighted average algorithm with V-geometrically ergodic Markov data.
   Algorithmic Learning Theory (ALT 2013).

6. Jeffrey P. Perley, Judith Mikolajczak, Vu Dinh, Marietta L. Harrison, Gregery T. Buzzard and Ann E. Rundell.
Systematically manipulating T-cell signaling dynamics via multiple model informed open-loop controller design.
IEEE Conference on Decision and Control (CDC 2012).

7. Nguyen Viet Cuong, Vu Dinh and Lam Si Tung Ho.
Mel-frequency cepstral coefficients for eye movement identification.
IEEE International Conference on Tools with Artificial Intelligence (ICTAI 2012).

IN REVIEW

1. Cuong Nguyen, Lam Ho, Huan Xu, Vu Dinh and Binh Nguyen (2017).
Bayesian pool-based active learning with abstention feedbacks.

2. Lam Ho, Vu Dinh and Cuong Nguyen, (2017).
Multi-task learning improves ancestral state reconstruction in evolutionary biology.

3. Binh T. Nguyen, Vu Dinh, Duy Nguyen and Lam Si Tung Ho (2017).
Fast concentration rates for pseudo-Bayesian learning with heavy-tailed losses.

IN PREPARATION

1. Lam Si Tung Ho*, Vu Dinh*, Frederick A. Matsen IV and Marc A. Suchard (2017).
Consistency of the maximum likelihood estimator for the transition rate under a 2-state symmetric model.

2. Cheng Zhang, Vu Dinh, and Frederick A. Matsen IV (2017).
Inferring unresolved phylogenies with the adaptive lasso.

TALKS

2017 Convergence of phylogenetic regularization.
Center for Applications of Mathematics in Medicine. University of Delaware.

2017 Online Bayesian phylogenetic inference via Sequential Monte Carlo.
11th International Conference on Monte Carlo Methods and Applications (MCM 2017). University of Montreal.

2017 Next-generation methods for phylogenetic inference: a theoretical foundation.
Department of Mathematical Sciences. University of Delaware.

2016 Fast learning rates with heavy-tailed losses.
2016 Conference on Neural Information Processing Systems (NIPS 2016), Barcelona.

2016 Hamiltonian Monte Carlo on the space of phylogenies.
World Congress in Probability and Statistics.
Fields Institute for Research in Mathematical Sciences.

2015 The shape of the one-dimensional phylogenetic likelihood function.
Department of Genome Sciences.
University of Washington.

2014 Experimental design for uncertainty reduction: a probabilistic approach.
Sandia National Laboratories.

2014 Uncertainty quantification and experimental design of cellular processes.
Fred Hutchinson Cancer Research Center.

2014 A probabilistic method for efficient behavior classification.
SIAM Conference on Uncertainty Quantification.

2013 Effective sampling schemes for behavior discrimination in enzymatic reaction networks.
NNSA Center for Prediction of Reliability, Integrity and Survivability of Microsystems.

2013 Robust explicit nonlinear model predictive control with integral sliding mode.
Computational Science and Engineering Student Conference.
Purdue University.

2012 Experimental design for dynamic identification of cellular processes.
Workshop on model-based analysis and control of cellular processes.
Purdue University.

2012 Experimental design for dynamics identification of biological systems.
Midwest Numerical Analysis Day.
University of Notre Dame.

2012 Dynamics identification of ODE systems.
Computational Science and Engineering Student Conference.
Purdue University.