

# Phu T. Van, PhD

pvan@alumni.cmu.edu , <https://ptvan.github.io>

## EDUCATION

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### Carnegie Mellon University

Ph.D., Biological Sciences

2014

### University of Washington

B.S., Biology (Physiology specialization), B.S., Wildlife Sciences

2007

## EXPERIENCE

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### FredHutch

*Bioinformatics Analyst, Analyst Group Leader*

October 2015 - Present

Seattle, WA

- Led the lab's 3 PhD-level analysts in bi-weekly collaboration meeting and journal club.
- Coordinated analysis between FredHutch and University of Cape Town (South Africa) on multi-omics data integration project.
- Performed variable selection and sensitivity analyses on immunology data for HIV vaccine trials.
- Developed analysis pipelines for multiple data types.
- Authored Statistical Analysis Plans. Co-authored peer-reviewed manuscripts.
- Mentored PhD students and non-scientific staff on statistics and experimental design.
- Advised collaborators on research projects and performed reviews of junior analysts' code.

### FredHutch

*Postdoctoral Fellow*

October 2014 - October 2015

Seattle, WA

- Developed R code to normalize mass cytometry experiments using multi-mixture models and identifying outliers for quality control.
- Developed R code for writing XML representation of cell populations to enable data sharing of flow cytometry experiments.
- Worked with engineers from FlowJo Inc. (Ashland, OR) to incorporate XML parsing into FlowJo X software package.
- Identified correlates of disease in flow cytometry data of early-stage vaccine candidates.

### Carnegie Mellon University

*PhD Student*

August 2009 - May 2014

Pittsburgh, PA

- Designed and built a patented high-dynamic-range protein gel imager with integrated gel cutting robot for identifying and capturing rare proteins.
- Developed processes that improved reduction and alkylation of complex protein samples in preparation for mass spectrometric sequence.
- Developed automated bash and C/C++ workflows to quantify protein abundances and detection biases in 2DE gel images.

### Institute for Systems Biology

*PhD Student*

May 2006 - August 2009

Seattle, WA

- Identified biophysical factors that differentially affect peptide detectability in tandem mass spectra experiments using R.
- Constructed a database and accompanying web frontend for mass spectrometric data.

- Identified genetic regulators of oxidative stress response across different environmental stresses by developing a weighted regression algorithm in R for microarray data.

## TECHNICAL STRENGTHS

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<b>Computer Languages</b>	R, Python, Matlab, C/C++, Perl
<b>Data Analysis</b>	clustering, regression, variable selection, hypothesis testing
<b>User Interfaces</b>	Shiny, PHP, JavaScript
<b>Databases</b>	MySQL, PostgreSQL, SQLServer
<b>Tools</b>	Slurm, Docker, GitHub
<b>Markup</b>	LaTeX, Markdown, HTML

## PUBLICATIONS AND PATENTS

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1. M. Blundon, V. Ganesan, B. Redler, P. T. Van, and J. S. Minden. Two-Dimensional Difference Gel Electrophoresis. *Methods Mol. Biol.*, 1855:229–247, 2019
2. D. F. E. Ker, S. Eom, S. Sanami, R. Bise, C. Pascale, Z. Yin, S. I. Huh, E. Osuna-Highley, S. N. Junkers, C. J. Helfrich, P. Y. Liang, J. Pan, S. Jeong, S. S. Kang, J. Liu, R. Nicholson, M. F. Sandbothe, P. T. Van, A. Liu, M. Chen, T. Kanade, L. E. Weiss, and P. G. Campbell. Phase contrast time-lapse microscopy datasets with automated and manual cell tracking annotations. *Sci Data*, 5:180237, 11 2018
3. P. Van, W. Jiang, R. Gottardo, and G. Finak. ggCyto: next generation open-source visualization software for cytometry. *Bioinformatics*, 34(22):3951–3953, 11 2018
4. P. T. Van, V. Ganesan, V. Bass, A. Parthasarathy, D. Schlesinger, and J. S. Minden. In-gel equilibration for improved protein retention in 2DE-based proteomic workflows. *Electrophoresis*, 35(20):3012–3017, Oct 2014
5. P. T. Van, V. Bass, D. Shiwarski, F. Lanni, and J. Minden. High dynamic range proteome imaging with the structured illumination gel imager. *Electrophoresis*, 35(18):2642–2655, Sep 2014
6. U. K. Iheagwara, P. L. Beatty, P. T. Van, T. M. Ross, J. S. Minden, and O. J. Finn. Influenza virus infection elicits protective antibodies and T cells specific for host cell antigens also expressed as tumor-associated antigens: a new view of cancer immunosurveillance. *Cancer Immunol Res*, 2(3):263–273, Mar 2014
7. A. Kaur, P. T. Van, C. R. Busch, C. K. Robinson, M. Pan, W. L. Pang, D. J. Reiss, J. DiRuggiero, and N. S. Baliga. Coordination of frontline defense mechanisms under severe oxidative stress. *Mol. Syst. Biol.*, 6:393, Jul 2010
8. T. Koide, D. J. Reiss, J. C. Bare, W. L. Pang, M. T. Facciotti, A. K. Schmid, M. Pan, B. Marzolf, P. T. Van, F. Y. Lo, A. Pratap, E. W. Deutsch, A. Peterson, D. Martin, and N. S. Baliga. Prevalence of transcription promoters within archaeal operons and coding sequences. *Mol. Syst. Biol.*, 5:285, 2009
9. P. T. Van, A. K. Schmid, N. L. King, A. Kaur, M. Pan, K. Whitehead, T. Koide, M. T. Facciotti, Y. A. Goo, E. W. Deutsch, D. J. Reiss, P. Mallick, and N. S. Baliga. Halobacterium salinarum NRC-1 PeptideAtlas: toward strategies for targeted proteomics and improved proteome coverage. *J. Proteome Res.*, 7(9):3755–3764, Sep 2008
10. A. K. Schmid, D. J. Reiss, A. Kaur, M. Pan, N. King, P. T. Van, L. Hohmann, D. B. Martin, and N. S. Baliga. The anatomy of microbial cell state transitions in response to oxygen. *Genome Res.*, 17(10):1399–1413, Oct 2007
11. J. S. Minden, F. Lanni, and P. T. Van. Structured illumination system for increased dynamic range in quantitative imaging, July 2019