

# ALEXANDRE AMLIE-WOLF

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<https://alexamlie.github.io>

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## EDUCATION

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**University of Pennsylvania**, Philadelphia, Pennsylvania, USA.

*2013-Present*

Ph.D. Genomics and Computational Biology, GPA: 3.86

Thesis Advisor: Li-San Wang

**Oberlin College**, Oberlin, Ohio, USA.

*2009-2013*

B.A. Computer Science with High Honors and B.A. Neuroscience, Phi Beta Kappa

GPA: Computer Science 3.93, Neuroscience 3.7, Cumulative 3.8

Thesis: "A Swarm of Salesmen: Algorithmic Approaches to Multiagent Modeling"

[http://rave.ohiolink.edu/etdc/view?acc\\_num=oberlin1368052652](http://rave.ohiolink.edu/etdc/view?acc_num=oberlin1368052652)

Thesis Advisor: Tom Wexler

## PUBLICATIONS

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\*: co-first author

### Manuscripts in preparation

1. **Amlie-Wolf A\***, Wang W\*, ..., Wang LS, Schellenberg GD. Progressive supranuclear palsy and genomic features of the chromosome 17 MAPT region.
2. Kuksa P\*, **Amlie-Wolf A\***, Hwang YC\*, Gregory BD, Wang LS. Identifying the transcription factors mediating enhancer - target gene regulation in the human genome.

### Manuscripts under review

1. **Amlie-Wolf A\***, Tang M\*, Way J, Dombroski B, Jiang M, Vrettos N, Chou YF, Zhao Y, Kuzma A, Mlynarski EE, Brown CD, Wang LS, Schellenberg GD. Inferring the molecular mechanisms of noncoding Alzheimer's disease-associated genetic variants. bioRxiv 2018, doi: 10.1101/401471. <https://www.biorxiv.org/content/early/2018/08/27/401471>
2. Kunkle BW, Grenier-Boley B, Sims R, Bis JC, Naj AC, Boland A, Vronskaya M, Lee SJ van der, **Amlie-Wolf A**, Bellenguez C, ..., Schellenberg GD, Lambert JC, Pericak-Vance MA (2018) Meta-analysis of genetic association with diagnosed Alzheimers disease identifies novel risk loci and implicates Abeta, Tau, immunity and lipid processing. bioRxiv, doi: 10.1101/294629. <https://www.biorxiv.org/content/early/2018/04/05/294629>
3. Wheeler JM\*, McMillan P\*, Strovas JT\*, Liachko NF, **Amlie-Wolf A**, ..., Schellenberg GD, Kraemer B (2018) The poly(A) binding protein MSUT2 controls resistance to both pathological tau and gliosis.

### Journal Articles

1. Kuksa PP, **Amlie-Wolf A**, Katanic Z, Valladares O, Wang LS, and Leung YY (2018). DASHR 2.0: integrated database of human small non-coding RNA genes and mature products. Bioinformatics. doi: 10.1093/bioinformatics/bty709
2. **Amlie-Wolf A**, Tang M, Mlynarski EE, Kuksa PK, Valladares O, Katanic Z, Tsuang D, Brown CD, Schellenberg GD, Wang LS. (2018) INFERNO: INFERring the molecular mechanisms of NONcoding genetic variants. Nucleic Acids Research, doi: 10.1093/nar/gky686
3. Kuksa PP, **Amlie-Wolf A**, Katanic Z, Valladares O, Wang LS. and Leung YY (2018) SPAR: small RNA-seq portal for analysis of sequencing experiments. Nucleic Acids Research, 46, W36W42. doi: 10.1093/nar/gky330

4. Nativio R, Donahue G, Berson A, Lan Y, **Amlie-Wolf A**, Tuzer F, Toledo J, Gosai S, Gregory B, Torres C, Trojanowski J, Wang LS, Johnson FB, Bonini N, Berger S. (2018) Dysregulation of the epigenetic landscape of normal aging in Alzheimer's disease. *Nature Neuroscience*. doi: 10.1038/s41593-018-0101-9
5. Leung YY, Kuksa P, **Amlie-Wolf A**, Valladares O, Ungar L, Kannan S, Gregory B, Wang LS. (2016) DASHR: database of small human noncoding RNAs. *Nucleic Acids Research*. doi: 10.1093/nar/gkv1188
6. **Amlie-Wolf A**, Ryvkin P, Tong R, Dragomir I, Suh E, Van Deerlin VM, Gregory BD, Kwong LK, Trojanowski JQ, Lee VM, Wang LS, Lee EB. (2015) Transcriptomic Changes Due to Cytoplasmic TDP-43 Expression Reveal Dysregulation of Histone Transcripts and Nuclear Chromatin. *PLoS ONE* 10(10): e0141836. doi: 10.1371/journal.pone.0141836

### Published Conference Abstracts

1. **Amlie-Wolf A**, Tang M, Way J, Dombroski BA, Vrettos N, Chou YF, Mlynarski EE, Brown CD, Wang LS, Schellenberg GD. (2018) Inferring the Molecular Mechanisms of Noncoding AD-Associated Genetic Variants. *Alzheimer's & Dementia: The Journal of the Alzheimer's Association*.
2. **Amlie-Wolf A**, Tang M, King J, Dombroski BA, Wang LS, Schellenberg GD. (2016) Computational identification of regulatory mechanisms affected by noncoding variants associated with late-onset Alzheimer's disease. *Alzheimer's & Dementia: The Journal of the Alzheimer's Association* 12(7), P640-P641.

## PRESENTATIONS

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### Invited and Conference Talks

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| 1. <b>American Society of Human Genetics</b>         | 10/20/2018              |
| <i>Conference Platform Talk</i>                      | <i>San Diego, CA</i>    |
| 2. <b>Alzheimer's Disease Genetics Consortium</b>    | 01/30/2018              |
| <i>University of Pennsylvania</i>                    | <i>Philadelphia, PA</i> |
| 3. <b>Genomics and Computational Biology Retreat</b> | 06/08/2017              |
| <i>University of Pennsylvania</i>                    | <i>Philadelphia, PA</i> |
| 4. <b>Alzheimer's Disease Genetics Consortium</b>    | 02/16/2017              |
| <i>Case Western Reserve University</i>               | <i>Cleveland, OH</i>    |

### Refereed Conference Posters

1. **Amlie-Wolf A**, Qu L, Mlynarski EE, Brown CD, Schellenberg DG, Wang LS. (2017) The regulatory landscape of genetic variants associated with psychiatric disorders and neurodegenerative diseases. The 67th Annual Meeting of the American Society of Human Genetics, Oct 17-21, Orlando, Florida.
2. Kuksa PP, Leung YY, **Amlie-Wolf A**, Valladares O, Wang LS. (2017) DASHR 2.0 - database of small non-coding RNAs in normal human tissues and cell types. The 67th Annual Meeting of the American Society of Human Genetics, Oct 17-21, Orlando, Florida.
3. Leung YY, Kuksa PP, **Amlie-Wolf A**, Wang LS. (2017) The landscape of short RNAs in human cell types and tissues. The 67th Annual Meeting of the American Society of Human Genetics, Oct 17-21, Orlando, Florida.
4. **Amlie-Wolf A**, Tang M, King J, Dombroski BA, Chou YF, Mlynarski EE, Schellenberg DG, Wang LS. (2017) Integrative analysis identifies immune-related enhancers and lncRNAs perturbed by genetic variants associated with Alzheimer's disease. UPenn Institute on Aging Retreat, May 23, Philadelphia, Pennsylvania.

5. **Amlie-Wolf A**, Tang M, Kuksa PP, Leung YY, Slaff B, King J, Dombroski BA, Schellenberg DG, Wang LS. (2016) INFERNO - INFERring the molecular mechanisms of NONcoding genetic variants. The 66th Annual Meeting of the American Society of Human Genetics, Oct 18-22, Vancouver, Canada and MidAtlantic Bioinformatics Conference, Oct 26, Philadelphia, PA, USA.
6. Leung YY, Kuksa PP, **Amlie-Wolf A**, Wang LS. (2016) The landscape of regulatory post-transcriptionally derived small noncoding RNAs in the human transcriptome. The 66th Annual Meeting of the American Society of Human Genetics, Oct 18-22, Vancouver, Canada.
7. **Amlie-Wolf A**, Tang M, King J, Dombroski BA, Wang LS, Schellenberg GD. (2016) Computational identification of regulatory mechanisms affected by noncoding variants associated with late-onset Alzheimer's disease. Alzheimer's Association International Conference, July 24-28, Toronto, Canada.
8. Kuksa PP, Leung YY, **Amlie-Wolf A**, Gregory BD, Wang LS. (2015) SPAR - Sequencing-based pipeline for annotating novel small non-coding RNAs. The 65th Annual Meeting of the American Society of Human Genetics, Oct 6-10, Baltimore, USA.
9. Leung YY, Kuksa PP, **Amlie-Wolf A**, Gregory BD, Wang LS. (2015) DASHR - Database of small human noncoding RNA. The 65th Annual Meeting of the American Society of Human Genetics, Oct 6-10, Baltimore, USA.
10. Freedman J, **Amlie-Wolf A**, Wittenberg R, Shoham O, Aronson S, Loose MD. (2014) Identifying the relative influence of multiple prior events on predictions of a probabilistic future: An artificial neural network analysis. Society for Neuroscience 2014, Nov 15-19, Washington D.C., USA.
11. Aronson S, **Amlie-Wolf A**, Loose MD. (2012) Making predictions in a stochastic environment: Strategies underlying the probability matching phenomenon and corresponding event-related potentials. Society for Neuroscience 2012, Oct 13-17, New Orleans, USA.
12. Loose MD, Aronson S, Scott H, Mehta T, Wang A, **Amlie-Wolf A**, Welch K. (2011) Salience is not always salient: Neither magnitude nor valence of expected outcome contributes to the N2/P3 event-related potential complex in a Go/NoGo task. Society for Neuroscience 2011, Nov 12-16, Washington D.C., USA.

## ACADEMIC AND PROFESSIONAL HONORS

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2017: 1<sup>st</sup> place poster award in basic science category at UPenn Institute on Aging Retreat  
 2015 - Present: Predoctoral Trainee in Age Related Neurodegenerative Diseases, NIH/NIA T32 AG00255  
 2013: Nancy Robell Prize in Neuroscience, Oberlin College  
 2013: Graduated with High Honors in Computer Science  
 2013: Inducted into Phi Beta Kappa  
 2009-2013: John F. Oberlin Merit Scholarship  
 2009-2013: National Merit Scholarship Finalist  
 2005-2009: Lower Merion High School Honor Roll

## RESEARCH EXPERIENCE

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**Graduate Student** January 2014-Present  
*Department of Pathology and Laboratory Medicine, University of Pennsylvania*  
*Advisor: Li-San Wang* Philadelphia, PA

- o Developing integrative computational methods to characterize the regulatory effects of noncoding genetic variation in Alzheimer's disease and related neurodegenerative diseases

**Rotation Student** March 2014-June 2014  
*Advisor: Edward B. Lee* Philadelphia, PA

**Rotation Student** September 2013-December 2013  
*Advisor: Yoseph Barash* Philadelphia, PA

<b>Computer Science Honors Student</b> <i>Department of Computer Science, Oberlin College</i> <i>Advisor: Tom Wexler</i>	Fall 2012-Spring 2013  <i>Oberlin, OH</i>
<b>DAAD RISE Scholar</b> <i>Department of Computer Science, Humboldt-Universität zu Berlin</i> <i>Advisors: Michael Frey, Mesut Günes, Joachim Fischer</i>	May 2012-August 2012  <i>Berlin, Germany</i>
<b>Research Assistant</b> <i>Department of Neuroscience, Oberlin College</i> <i>Advisor: Michael Loose</i>	Spring 2011-Spring 2013  <i>Oberlin, OH</i>
<b>Research Assistant</b> <i>Department of Neuroscience, Oberlin College</i> <i>Advisor: Keith Downing</i>	Fall 2011-Spring 2012  <i>Oberlin, OH</i>
<b>Summer Undergraduate Research Assistant</b> <i>Center for Neurodegenerative Disease Research, University of Pennsylvania</i> <i>Advisors: Virginia Lee and Li-San Wang</i>	Summer 2011  <i>Philadelphia, PA</i>
<b>Summer Undergraduate Research Assistant</b> <i>Center for Neurodegenerative Disease Research, University of Pennsylvania</i> <i>Advisor: Virginia Lee</i>	Summer 2010  <i>Philadelphia, PA</i>

## ACADEMIC SERVICE

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<b>Member of committee to update individual development plans (IDP)</b> <i>Biomedical Graduate Studies, University of Pennsylvania</i>	2016-2017 <i>Philadelphia, PA</i>
<b>Reviewer for APBC and BIBM Conferences</b>	2017-2018
<b>Organizer for student-invited Penn Bioinformatics Forum talks</b> <i>Institute for Biomedical Informatics, University of Pennsylvania</i>	Fall 2014-Spring 2016 <i>Philadelphia, PA</i>

## TEACHING EXPERIENCE

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<b>TA and course development for GCB535: Introduction to Bioinformatics</b> <i>Biomedical Graduate Studies, University of Pennsylvania</i>	Spring 2016 <i>Philadelphia, PA</i>
<b>Tutor for BIOM555: Regulation of the Genome</b> <i>Biomedical Graduate Studies, University of Pennsylvania</i>	Spring 2015 <i>Philadelphia, PA</i>
<b>Grader for Computer Science 275: Programming Abstractions</b> <i>Department of Computer Science, Oberlin College</i>	Spring 2013 <i>Oberlin, OH</i>
<b>Grader for Computer Science 151: Principles of Computer Science II</b> <i>Department of Computer Science, Oberlin College</i>	Fall 2012 <i>Oberlin, OH</i>
<b>Grader for Computer Science 150: Principles of Computer Science I</b> <i>Department of Computer Science, Oberlin College</i>	Spring 2012 <i>Oberlin, OH</i>
<b>Tutor for Computer Science 151: Principles of Computer Science II</b> <i>Department of Computer Science, Oberlin College</i>	Fall 2011 <i>Oberlin, OH</i>

## RESEARCH SKILLS

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**Programming languages:**

Strong - R, Python, bash, Java, C/C++, L<sup>A</sup>T<sub>E</sub>X

Moderate - Mathematica, Assembly, Perl, MATLAB, Scheme

**Wet lab skills:**

Molecular cloning, cell culture, transient transfection, luciferase assay, protein biochemistry

**SOCIETY MEMBERSHIPS**

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American Society of Human Genetics, Alzheimer's Association, Phi Beta Kappa (Zeta of Ohio Chapter), Sigma Xi, The Pledge of the Computing Professional, Society for Neuroscience

**EXTRACURRICULAR ACTIVITIES**

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Avid Musician: Oboe, Bass Guitar, Guitar, Piano, Drums, Vocals, Double Bass, Mandolin.

<https://alexamliewolf.bandcamp.com>

<https://soundcloud.com/alexamlie/>

<https://www.youtube.com/c/AlexAmlieWolf>

'Honorary' Member of Oberlin Conservatory Oboe Studio, played with the Oberlin Chamber Orchestra (usually open only to Conservatory music students, extremely rare for a wind player)

Member of the Competitive Computer Programming Club at Oberlin, competed at the Denison Programming Contest and the ACM International Collegiate Programming Contest

Languages: English (native), French (conversational)