

# ALEX C. WILLIAMS

*Computer Science, Ph.D Student*

David R. Cheriton  
School of Computer Science  
University of Waterloo

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## RESEARCH STATEMENT

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My research focuses on designing, building, and studying systems that support the future of work with an emphasis on cognitive augmentation. My work takes inspiration from cognitive psychology, mixed-initiative systems, and human-robot interaction.

## EDUCATION

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**University of Waterloo**, 2020 (expected)

*Doctor of Philosophy*, Computer Science Supervisors: Edith Law, Ed Lank

**Middle Tennessee State University**, 2015

*Master of Science*, Computer Science Thesis: *Computationally Accelerated Papyrology*

**Middle Tennessee State University**, 2013

*Bachelor of Science*, Computer Science

## RESEARCH EXPERIENCE

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**Microsoft Research**, Redmond, WA

*Research Intern, Information and Data Sciences Group  
with: Ryen White, Adam Fourney, and Shamsi Iqbal*

Summer 2018

**Microsoft Research**, Redmond, WA

*Research Intern, AI + Microproductivity Research Group  
with: Jaime Teevan and Shamsi Iqbal*

Summer 2017

**University of Oxford**, Oxford, UK

*Research Scientist, Faculty of Classics  
with: James Brusuelas and Dirk Obbink*

Summer 2014, Winter 2015

**Oak Ridge National Laboratory**, Oak Ridge, TN

*Research Intern, Computational Sciences and Engineering Division  
with: Georgia Tourassi*

Summer 2013

**Oak Ridge National Laboratory**, Oak Ridge, TN

*Research Intern, Computational Sciences and Engineering Division  
with: Georgia Tourassi*

Summer 2012

**Middle Tennessee State University**, Murfreesboro, TN

*Research Assistant, Center for Computational Science*

Fall 2013

## TEACHING EXPERIENCE

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**University of Waterloo**, Waterloo, ON

*Graduate Teaching Assistant, School of Computer Science*

- *Teaching Assistant*, CS785: AI, Law, and Policy (Fall 2017; Fall 2018)
- *Sessional Instructor*, CS349: User Interfaces (Winter 2017)
- *Instructional Apprentice*, CS349: User Interfaces (Fall 2016)
- *Teaching Assistant*, CS349: User Interfaces (Winter 2016; Spring 2016)
- *Teaching Assistant*, CS330: Information Management Systems (Fall 2015)

2015 – present

- University of Victoria**, Victoria, BC 2016 – present  
*Workshop Instructor, Digital Humanities Summer Institute*
- *Instructor, Crowdsourcing as a Tool for Research and Public Engagement (Summer 2016; 2017)*
- Middle Tennessee State University**, Murfreesboro, TN 2013 – 2015  
*Graduate Teaching Assistant, Department of Computer Science*
- *Instructor, CSCI 1150: Computer Science Orientation (Spring 2015)*
  - *Instructor, CSCI 3130: Introduction to Computer Architecture (Fall 2013; Spring 2014)*
  - *Grader, CSCI 3160: Introduction to Assembly Language (Fall 2013)*
- Middle Tennessee State University**, Murfreesboro, TN 2012 – 2013  
*Computer Science Tutor, Department of Computer Science*

## PUBLICATIONS

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### JOURNAL PAPERS

- [1] C. Willis, E. Law, **A.C. Williams**, B. Franzone, R. Bernardos, L. Bruno, C. Hopkins, C. Schorn, E. Weber, D. Park and C. Davis. CrowdCurio: an online crowdsourcing platform to facilitate climate change studies using herbarium specimens. *New Phytologist*. 2017.
- [2] H.D. Carroll, **A.C. Williams**, A.G. Davis, and J.L. Spouge. Improving retrieval efficacy in homology search using the false discovery rate. In *ACM/IEEE Transactions on Computational Biology and Bioinformatics*. 2014.

### REFEREED CONFERENCE AND WORKSHOP PAPERS

- [3] **A.C. Williams**, H. Kaur, G. Mark, A. Thompson, S. Iqbal and J. Teevan. Supporting Workplace Detachment and Reattachment with Conversational Intelligence. In *Proceedings of 2018 Conference on Human Factors in Computing (CHI 2018)*. Montreal, Canada.
- [4] **A.C. Williams**, J. Goh, C.G. Willis, J. Brusuelas, A. Ellison, C. Davis, and E. Law. Deja Vu: Characterizing Worker Consistency Using Task Consistency. In *Proceedings of the AAAI Conference on Human Computation (HCOMP 2017)*. Quebec City, Canada.
- [5] E. Law, K. Gajos, A. Wiggins, M. Gray, and **A.C. Williams**. Crowdsourcing as a Tool for Research : Implications of Uncertainty. In *Proceedings of the 20th ACM Conference on Computer Supported Cooperative Work & Social Computing*, 2017.
- [6] T. Tse, J. Salamon, **A.C. Williams**, H. Jiang, and E. Law. Ensemble: A Hybrid Human-Machine System for Generating Melody Scores from Audio. *Conference for the International Society for Music Information Retrieval*, 2016.
- [7] **A.C. Williams**, A.Santarsiero, C.Meccariello, G. Verhasselt, H.D. Carroll, J.F. Wallin, D. Obbink, and J.H. Brusuelas. Proteus: A Platform for Born Digital Editions of Literary Papyri. In *Proceedings of the 2015 International Congress on Digital Cultural Heritage*, Grenada, Spain.
- [8] **A.C. Williams**, J.F. Wallin, H. Yu, M. Perale, H.D. Carroll, A. Lamblin, L. Fortson, D. Obbink, C.J. Lintott, and J.H. Brusuelas. A Computational Pipeline for Crowdsourced Transcriptions of Ancient Greek Papyrus Fragments. In *Proceedings of the 2014 IEEE International Conference on Big Data*, Washington D.C., USA.
- [9] **A.C. Williams**, H.D. Carroll, J.F. Wallin, J. Bruseulas, L. Fortson, A. Lamblin, and H. Yu. Identification of Ancient Greek Papyrus Fragments Using Genetic Sequence Alignment Algorithms. In *Proceedings of the 2014 IEEE International Conference on e-Science*, Guarujá, Brazil.
- [10] H.D. Carroll, **A.C. Williams**, A.G. Davis, and J.L. Spouge. False Discovery Rate for Homology Searches.

In *Proceedings of the 8th Brazilian Symposium on Bioinformatics*, pp 194-201, 2013.

[11] **A.C. Williams**, A. Hitt, S. Viosin, and G. Tourassi. Automated Assessment of Bilateral Breast Volume Asymmetry as a Breast Cancer Biomarker during Mammographic Screening. In *Proceedings of SPIE Medical Imaging*, 2013.

## POSITION PAPERS

[12] **A.C. Williams**, J. Bradshaw, M. Schaekermann, T. Tse, W. Callaghan, and E. Law. The Big Picture: Preserving Context in the Decomposition of Complex Expert Tasks. *ACM Conference on Human Factors in Computing: Workshop on Microproductivity*, 2016.

[13] M. Schaekermann, E. Law, **A.C. Williams**, and W. Callaghan. Resolvable vs. Irresolvable Ambiguity: A New Hybrid Framework for Dealing with Uncertain Ground Truth. *ACM Conference on Human Factors in Computing: Workshop on Human-Centered Machine Learning*, 2016.

## SERVICE

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**Session Chair.** HCOMP 2015

**Program Committee.** HCOMP 2017; GroupSight 2017

**Reviewer.** CHI 2016, 2017, 2018; CSCW 2018; Citizen Science Association 2017

**President.** MTSU Association for Computing Machinery Student Chapter 2012 – 2014

**Member.** ACM, IEEE, AAAI

## FUNDING

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**Waterloo Citizen Science Laboratory: Infrastructure Project Funding** (2016)

Co-authored with E. Law & M. Schaekermann. \$144,703 awarded via Canadian Foundation for Innovation

**Fragmentary Papyrus Identification Using Genetic Sequence Alignment Algorithms** (2013)

Co-authored with Hyrum Carroll. \$7,800 awarded via Middle Tennessee State University FRCAC Grant

## HONORS, AWARDS, and ACHIEVEMENTS

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2017 – **Cheriton Type II Scholarship**, School of Computer Science, University of Waterloo

2016 – **Vanier Graduate Scholarship Competition**, National Finalist

2016 – **CSST Summer Research Institute**, Selected Ph.D. Participant

2015 – **GO-Bell Scholarship**, School of Computer Science, University of Waterloo

2015 – **International Doctoral Student Award**, School of Computer Science, University of Waterloo

2015 – **Paul Hutcheson Outstanding Graduate Student Scholarship**, MTSU

2013 – **Chester and Mary Martin Graduate Scholarship**, MTSU (\$500.00)

2013 – **1st Place**, Deloitte's iOS and Android Mobile Application Design Competition (\$3000.00)

2013 – **3rd Place**, MTSU ACM Programming Competition

2013 – **3rd Place**, MTSU Scholar's Week Poster Session

## DEPARTMENTAL SERVICE

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2018 – **Graduate Rep.**, School Advisory Committee on Appointments (SACA), University of Waterloo

2013 – **Undergraduate Rep.**, Student Advisory Board, MTSU Department of Computer Science