# Paul "Will" McBurney

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## Research

**Software engineering**, program comprehension, source code analysis, information retrieval in software engineering, repository mining, software evolution and maintenance, traceability,

## Experience

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|---|---|
| **Assistant Professor - Academic General Faculty**<br>University of Virginia<br>School of Engineering and Applied Science<br>Department of Computer Science | 2019 – *present* |
| **Lecturer**<br>University of Pennsylvania<br>School of Engineering and Applied Science<br>Department of Computer and Information Science | 2016 – 2019 |

## Education

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|---|---|---|
| **Ph.D.** | University of Notre Dame, Computer Science<br>Title: *"Automatic Documentation Generation for Software"*<br>Committee: Collin McMillan, David Chiang, Lori Pollock,<br>Aaron Strigel, Douglas Thain | 2016 |
| **M.S.** | West Virginia University, Computer Science | 2012 |
| **B.S.** | West Virginia University, Computer Science | 2010 |

## Instructor of Record

University of Virginia - Department of Computer Science

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|---|---|---|
| **CS 3140** | **Software Development Essentials** | **Fall 2023** |
| **CS 3240** | **Adv. Software Development Methods** | **Fall 2022** |
| **CS 3140** | **Software Development Essentials** | **Fall 2022** |
| **CS 3140** | **Software Development Essentials** | **Summer 2022** |
| **CS 3140** | **Adv. Software Development Methods** | **Spring 2022** |
| **CS 3240** | **Introduction to Programming** | **Fall 2021** |
| **CS 1110** | **Adv. Software Development Methods** | **Fall 2021** |
| **CS 3240** | **Software Development Methods** | **Summer 2021** |
| **CS 3240** | **Adv. Software Development Methods** | **Spring 2021** |
| **CS 1110** | **Introduction to Programming** | **Spring 2021** |
| **CS 3240** | **Adv. Software Development Methods** | **Fall 2020** |
| **CS 1110** | **Introduction to Programming** | **Fall 2020** |
| **CS 2110** | **Software Development Methods** | **Summer 2020** |
| **CS 2501** | **Software Development Essentials** | **Spring 2020** |
| **CS 2110** | **Software Development Methods** | **Spring 2020** |
| **CS 2110** | **Software Development Methods** | **Fall 2019** |

**CS 1111**     **Introduction to Programming**     **Fall 2019**

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University of Pennsylvania - Department of Computer and Information Science

**CIS 110**     **Introduction to Computer Programming**     **Summer 2019**

**CIS 110**     **Introduction to Computer Programming**     **Spring 2019**

**CIS 110**     **Introduction to Computer Programming**     **Fall 2018**

**CIS 110**     **Introduction to Computer Programming**     **Summer 2018**

**CIS 350**     **Software Design and Engineering**     **Spring 2018**

**CIT 594**     **Data Structures and Software Design**     **Spring 2018**

**CIS 110**     **Introduction to Computer Programming**     **Fall 2017**

**CIS 110**     **Introduction to Computer Programming**     **Summer 2017**

**CIS 350**     **Software Design and Engineering**     **Spring 2017**

**CIT 590**     **Programming Languages and Techniques**     **Spring 2017**

**CIS 110**     **Introduction to Computer Programming**     **Fall 2016**

**CIT 594**     **Data Structures and Software Design**     **Fall 2016**

**CIS 110**     **Introduction to Computer Programming**     **Summer 2016**

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University of Notre Dame - Department of Computer Science and Engineering

**CSE 40323**     **Software Engineering**     **Fall 2014**

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West Virginia University - Lane Department of Computer Science and Electrical Engineering

**CS 310**     **Principles of Programming Languages**     **Summer 2012**

| **CS 101** | **Introduction to Computer Applications** | **2010-2011** |

## Teaching Assistant

University of Notre Dame - Department of Computer Science and Engineering

| **CSE 20110** | **Discrete Mathematics** | **Fall 2014** |

| **CSE 30341** | **Operating Systems Principles** | **Spring 2013** |

| **CSE 20110** | **Discrete Mathematics** | **Fall 2012** |

West Virginia University - Lane Department of Computer Science and Electrical Engineering

## Publications

**McBurney P.W.**, C. Murphy, "Experience of Teaching a Course on Software Engineering Principles Without a Project", In Proceedings of the 52nd ACM Technical Symposium on Computer Science Education (SIGCSE '21). Association for Computing Machinery, New York, NY, USA, 122–128.

**McBurney P.W.**, et al. "Towards Prioritizing Documentation Effort," in IEEE Transactions on Software Engineering, vol. 44, no. 9, pp. 897-913, 1 Sept. 2018, doi: 10.1109/TSE.2017.2716950.

Cruz, B. D., McBurney P. W., McMillan C., "TraceLab Components for Reproducing Source Code Summarization Experiments," 2016 IEEE International Conference on Software Maintenance and Evolution (ICSME), Raleigh, NC, USA, 2016, pp. 610-610, doi: 10.1109/ICSME.2016.20.

**McBurney, P. W.**, McMillan, C., "Automatic Source Code Summarization of Context for Java Methods", in IEEE Transactions on Software Engineering (TSE), vol. 42, no. 2, pages 103-119.

**McBurney, P. W.**, Liu, C., McMillan, C., "Automated Feature Discovery via Sentence Selection and Source Code Summarization", Journal of Software Evolution and Process (JSEP), volume 28, issue 2, February 2016, pages 120-145.

Rodeghero P., Liu C., **McBurney P. W.**, McMillan C., "An Eye-Tracking Study of Professional Programmers and Application to Source Code Summarization", IEEE Transactions on Software Engineering, vol. 41, no. 11, November 2015, pp. 1038-1054.

**McBurney, P. W.**, McMillan, C., "An Empirical Study of the Textual Similarity between Source Code and Source Code Summaries", in Empirical Software Engineering (EMSE), vol. 21, no. 1, February 2016, pp. 17-42

**McBurney, P. W.**, "Automatic Documentation Generation via Source Code Summarization," *Proc. of 37ᵗʰ IEEE/ACM International Conference on Software Engineering, Doctoral Symposium* (ICSE'15) vol.2, no., pp.903-906, 16-24 May 2015

**McBurney, P. W.**, McMillan, C., "Automatic Documentation Generation via Source Code Summarization of Method Context", in *Proc. of 22nd International Conference on Program Comprehension* (ICPC'14), Hyderabad, India, June 2-3 2014, 12 pages. **Best Paper Award.**

Rodeghero, P., McMillan, C., **McBurney, P. W.**, Bosch, N., D'Mello, S., "Improving Automated Source Code Summarization via an Eye-Tracking Study of Programmers", in *Proc. of 36ᵗʰ IEEE/ACM International Conference on Software Engineering* (ICSE'14), Hyderabad, India, May 31-June 7 2014, 12 pages. (20% acceptance rate) **ACM Distinguished Paper Award.**

**McBurney, P. W.**, Liu, C., McMillan, C., and Weninger, T., "Improving Topic Model Source Code Summarization", in *Proc. of 22nd International Conference on Program Comprehension*, Early Research Achievements Track (ICPC'14 ERA), Hyderabad, India, June 2-3 2014, 4 pages.

## Ongoing Projects

Software Development Essentials Free Online Textbook: `http://sde-course.com`

## Professional Activities

**Service**

**University of Virginia**

*2023-present*  ICPC (Inter-Collegiate Programming Competition) co-coach

*2022-present*  CS Minor Coordinator

*2022-present*  Curriculum Coordinator

*2019-present*  Undergraduate Academic Advisor

*2019-present*  BSCS Committee Member

*2021-2022*  AGF (teaching-track) CS Search Committee

**University of Pennsylvania**

*2019-present*  Undergraduate Academic Advisor

*2018-2019*  Teaching Infrastructure Committee Member

*2017-2018*  Development for MCIT Online Education Program

*2017-2019*  Advised 2 Senior Projects

**Reviewer**

*2021-2023*  SIGCSE Technical Symposium

*2022*  IEEE Transactions on Software Engineering

*2018*  IEEE Transactions on Software Engineering

*2018*  International Workshop on Software Analytics

*2017*  International Workshop on Software Analytics

*2016*  International Workshop on Software Analytics

*2015*  Journal of Software Evolution and Process

**Sub-Reviewer**

*2015* 23$^{rd}$ IEEE International Conference on Program Comprehension
23$^{rd}$ International Conference on Software Reuse

*2014* 31$^{st}$ IEEE International Conference on Software Maintenance and Evolution, ERA Track

## REFERENCES

**Mark Sherriff, Ph.D.** (sherriff@virginia.edu)
Professor - Academic General Faculty
University of Virginia, Charlottesville, VA

**Ray Pettit, Ph.D.** (raymond.pettit@virginia.edu)
Associate Professor - Academic General Faculty
University of Virginia, Charlottesville, VA

**Chris Murphy, Ph.D** (cmurphy@cs.swarthmore.edu)
Visiting Assistant Professor
Swarthmore College, Swarthmore, PA

Additional references available upon request.