

**Michael Wehar**  
www.michaelwehar.com  
mwehar1@swarthmore.edu

---

**SUMMARY** I am currently a Visiting Assistant Professor at Swarthmore College where I teach courses, pursue research, and mentor students. My current research focuses on topics in Algorithms, Formal Language Theory, and Language Technology. My recent teaching includes courses in Software Engineering and Data Structures & Algorithms.

**EDUCATION** **PhD**, Computer Science and Engineering, University at Buffalo  
**Supervisor:** Dr. Kenneth Regan  
**Dates:** Aug 2013 - Dec 2016

**MS & BS**, Mathematical Sciences, Carnegie Mellon University  
**Dates:** Aug 2009 - May 2012 (graduated early)

**TEACHING** **Visiting Assistant Professor** at Swarthmore College (**Aug 2019 - Present**): Teaching Software Engineering (CS71) and Data Structures & Algorithms (CS35). Leading directed reading on User Experience & Interaction Design and supervising student-run course Foundations of Technological Entrepreneurship.

**Assistant Professor of Instruction** at Temple University (**Jul 2018 - Jun 2019**): Teaching Software Design (CIS 3296) and Data Structures (CIS 2168).

**Part-time Instructor** at University of Pittsburgh (**Fall 2017**): Teaching Algorithm Implementation (CS1501) as an adjunct instructor.

**Adjunct Faculty** at Rochester Institute of Technology (**Summer 2015**): Teaching Computer Science Theory (CSCI 262) as an adjunct instructor.

**Teaching Assistant** at University at Buffalo (**Aug 2013 - Dec 2016**): Assisting with Introduction to Computer Science, Discrete Structures, Theory of Computation, and Software Engineering Concepts.

**Teaching Assistant** at Carnegie Mellon University (**Spring 2010 & Fall 2012**): Assisting with Concepts of Mathematics and Honors Matrix Theory.

**PAPERS** T. Hüttenrauch and M. Wehar. An Online Dictionary for Dialects of North Frisian. EURALI 2022 (to appear).

A. Salamon and M. Wehar. Superlinear Lower Bounds Based on ETH. STACS 2022.

M. Oliveira and M. Wehar. On the Fine Grained Complexity of Finite Automata Non-emptiness of Intersection. DLT 2020.

D. Průša and M. Wehar. Complexity of Searching for 2 by 2 Submatrices in Boolean Matrices. DLT 2020.

F. Mráz, D. Průša, and M. Wehar. Two-dimensional pattern matching against basic picture languages. CIAA 2019. (Journal Version: TCS 2021)

M. Oliveira and M. Wehar. Intersection non-emptiness and hardness within polynomial time. DLT 2018.

D. Chistikov, W. Czerwinski, P. Hofman, M. Pilipczuk, and M. Wehar. Shortest paths in one-counter systems. FoSSaCS 2016. (Journal Version: LMCS 2019)

J. Swernofsky and M. Wehar. On the complexity of intersecting regular, context-free, and tree languages. ICALP 2015 (Track B).

M. Wehar. Hardness results for intersection non-emptiness. ICALP 2014 (Track B). **(Best Student Paper Award)**

## **SUPERVISING RESEARCH**

Supervised four college-sponsored student research projects that were accepted for presentation at the National Conference on Undergraduate Research (NCUR):

- M. Quiroz. Analyzing Group and Individual Contributions within Group Programming. NCUR 2022.
- C. Brandt. Machine Assisted Speed Reading and Training. NCUR 2021.
- A. Liloia. Efficient Algorithms for the Four Corners Problem and Two-Dimensional Pattern Matching. NCUR 2021.
- O. Peterson. Automatic Crossword Puzzle Construction. NCUR 2021.

## **POSTERS**

M. Quiroz and M. Wehar. Analyzing Group and Individual Contributions within Group Programming: RepoRabbit Web Application. ITiCSE 2022 (to appear).

C. Cossé, I. Livni, and M. Wehar (additional credits to all who helped). Converting unstructured web data into sequenced STEM educational games. PyCon 2018.

## **PATENTS**

M. Hailpern, M. Hernandez-Sherrington, Y. Li, M. Wehar, and H. Zhu. Constraint tracking and inference generation. U.S. Patent 11,074,508. July 27, 2021.

M. Wehar. Human and Computer Cooperative Artistic Creation. U.S. Provisional Patent Appl. No. 62/590,577. Filed November 2017.

## **HONORS & AWARDS**

- Faculty Research Support Award from Swarthmore College (awarded three times) and collaboration partner on grant awarded by German Research Foundation (DFG).
- Elected as President of University at Buffalo's Computer Science Graduate Student Association representing approximately 400 computer science graduate students.
- Selected for University at Buffalo's Computer Science & Engineering Graduate Leadership Award, Dean's Scholars Award, and Department Commencement Speaker.
- Hackathon projects awarded "People's Choice Award" at Webex Apps 2022 and "Most Time-saving Hack" at UB Hacking 2016.
- Best Student Paper Award for ICALP 2014 (Track B).

## **INDUSTRY**

**VP of Technology** at Rodgers Insurance Group (**Aug 2021 - Present**):

- Established by my family in 1957, Rodgers Insurance Group is one of the largest independent and locally owned insurance agencies located in western Pennsylvania.
- Serving in a strategy focused role performing tasks related to recruiting, web development, security audits, technology purchasing, and record management.

**Founder** at WordofTheHour.org [JS, PHP, Python] (**Jun 2017 - Present**):

Language learning app for learning vocabulary words across multiple languages.

- Built and published apps that support 10+ platforms including Web, Android, Roku, Fire TV, ElectronJS, Slack, Webex, Chrome Extension, and more.
- Grew community to over 30,000 total users across all platforms.
- Community crowdsourcing resulted in over 30,000 user submitted translations enabling us to support vocabulary words in over 10+ languages.

**Co-Founder** at Friisk.org [JS, PHP] (**Feb 2018 - Present**): Language preservation project to digitize endangered dialects of the North Frisian language.

- Responsibilities include data organization, testing procedures, website frontend & backend, spell checking, and pronunciation generator.

**Software Consultant** at WordReference.com [JS, PHP] (**Nov 2018 - Jun 2019**):

- Worked directly with the founder of WordReference.com developing web-based technologies related to spell checking and autocomplete.

**Computer Vision Programmer** at Capsen Robotics [C++] (**Jan 2017 - Jul 2018**):

- Worked with a small team on C++ development and testing of our core computer vision technologies for object recognition, 3D scanning, and bin picking.
- Contributed to custom built machine learning algorithms, CUDA programming, robot motion planning, and robot simulation. Also, I gained experience with matrix algebra, kinematics, 3D cameras, 3D printers, ROS, and industrial robotic arms.
- In addition to software development, I filmed a product video, co-mentored summer interns, and assisted with patent application.

**Research Intern** at IBM Research [Java] (**Summer 2016**):

- Worked with the text analytics research group to develop a query language and engine for verifying constraints related to text data.
- Developed a software system in Java consisting of a parser, query evaluator, data accessor, and inference engine.
- A patent was filed and issued based on this work.

**Technical Evangelist Intern** at Meed Inc Startup (**Spring 2016**):

- Content writer for software engineering online community offering advice to undergraduate computer science students.

**Software Developer** at Soglo Startup [Java, Android] (**Jan 2013 - Mar 2013**):

- Developed an Android App to facilitate bluetooth communication with a wearable apparel device. App integrated with API's for accelerometer, voice, and weather.

## SERVICE

**Volunteer Judge & Mentor** (**Sep 2016 - Present**):

- Mentor for 50+ student software projects consisting of 180+ total students.
- Judge and mentor for college hackathons, high school hackathons, Major League Hacking online hackathons, and college innovation competitions.

**Departmental Service** at Swarthmore College (**Fall 2019 - Present**):

- Faculty mentor for Algorithms Research Group, Google Developer Student Club, and Swarthmore College Radio Station (WSRN 91.5 FM).
- Serving as an undergraduate advisor and a sophomore plan advisor.
- Serving as department event planner.

**Departmental Service** at Temple University (**Fall 2018 - Spring 2019**):

- Served on CIS Undergraduate Curriculum Committee.

**Additional Service:** Founder of a young adults social group with 900+ members, writer for Artificial Intelligence+ Blog, and volunteer for Women's Film Festival.