Erik Krohn

CONTACT INFORMATION	Computer Science Department University of Wisconsin - Oshkosh *Phone:* (920) 424-2063 800 Algoma Blvd *E-mail:* krohne@uwosh.edu Oshkosh, WI 54901 *Webpage:* https://faculty.cs.uwosh.edu/faculty/krohn/

EDUCATION

University of Iowa, Iowa City, IA

Ph.D., Computer Science, December 2009
- Thesis Title: Surveilling Roads and Protecting Art
- Advisor: Professor Kasturi Varadarajan
- Area of Study: Algorithms/Computational Geometry

M.S., Computer Science, December 2007

University of Wisconsin - La Crosse, La Crosse, WI

B.S., Computer Science, May 2004
- Minor in Mathematics
- Minor in Physics with an Astronomy Emphasis

PROFESSIONAL EXPERIENCE

University of Wisconsin - Oshkosh, Oshkosh, WI

Associate Professor   **September 2016 to present**

Assistant Professor   **September 2010 to August 2016**
- Courses Taught:
    - CS142 - Introduction to Computer Science and Programming (1 section)
    - CS142 - Elementary Programming in Visual Basic (3 sections)
    - CS212 - Discrete Structures (1 section)
    - CS221 - Object-Oriented Design and Programming I (7 sections)
    - CS262 - Object-Oriented Design and Programming II (4 sections)
    - CS271 - Data Structures (6 sections)
    - CS321 - Algorithms (6 sections)
    - CS331 - Programming Languages (3 sections)
    - CS344 - Mobile Application Development (3 sections)
    - CS346 - Web Software Development (2 sections)
    - CS399 - Internship in Computer Science (2 sections)
    - CS431 - Compilers (5 sections)
    - CS446 - Computer Science Independent Study (1 section)
    - CS474 - Computer Science Honors Thesis (1 section)
    - CS480 - Topics in Computer Science: High Performance Computing (1 section)
    - CS480 - Topics in Computer Science: Algorithms (1 section)
    - CS480 - Topics in Computer Science: Mobile Software Development (1 section)
    - CS490 - Practicum in Computer Science (2 sections)
    - DS730 - Big Data: High Performance Computing (16 sections)
    - MATH212 - Mathematics for Computer Science (2 sections)

Data Science Academic Director   **July 2014 to present**

- UW-Oshkosh campus director for a collaborative Master of Data Science degree.
- Assisted in the planning stages of the degree to determine course offerings, topic coverage, prerequisites, etc.
- Responsible for ensuring Oshkosh is adequately staffed for the courses for which we are responsible.
- Provide academic advising along with reviewing and approving credit for prior learning.

University of Iowa, Iowa City, IA

Visiting Assistant Professor   **January 2010 to May 2010**

- Courses Taught:
    22C:005 - Introduction to Computer Science (1 section)
    22C:109 - Programming with C++ (1 section)

Teaching Assistant   **August 2004 to December 2009**

- Sole Responsibility
    22C:001 - Computer Literacy (4 sections)
    22C:109 - Programming with C++ (3 sections)

- Discussion Instructor
    22C:016 - Computer Science I: Fundamentals (2 sections)
    22C:021 - Computer Science II: Data Structures (2 sections)
    22C:104 - Introduction to Informatics (1 section)

- Grader
    22C:031 - Algorithms (1 section)

Research Assistant   **January 2007 to December 2007**

- Advisor: Professor Kasturi Varadarajan
- Investigated several geometric set covering problems. The majority of the time was spent working on the art gallery problem and terrain guarding problem.
- Studied other problems including clustering problems and target tracking problems.

Mount Mercy University, Cedar Rapids, IA

Adjunct Instructor   **January 2009 to May 2010**

- CS226 - Programming in Visual Basic (1 section)
- CS227 - Programming in C++ (1 section)
- CS389 - Algorithm Analysis (1 section)

Malmö University, Malmö, Sweden

Visiting Researcher   **August 2011 to September 2011**

- Spent part of the summer working with Professor Bengt Nilsson.
- Investigated several geometric set covering problems. Spent the majority of the time studying the art gallery problem where the polygon is monotone.

Visiting Researcher   **May 2008 to June 2008**

- Spent part of the summer working with Professor Bengt Nilsson.
- Investigated several geometric set covering problems. Spent the majority of the time studying the art gallery problem and terrain guarding problem.

Kirkwood Community College, Cedar Rapids, IA

Instructor   **August 2007 to January 2009**

- Taught many types of courses to non-traditional students.
- Topics included PHP, MySQL, C++, C#, HTML and Microsoft Office.
- Classes were generally 1-3 weeks in length and included many hands-on activities.
- Advised other instructors on effective ways to teach non-traditional students.

RESEARCH INTERESTS

Theory and Algorithms. More specifically, computational geometry problems, art gallery problems, terrain guarding problems. Also interested in computer science education, compilers and programming languages.

AWARDS & CERTIFICATES

Invited to participate in iPDC (Parallel and Distributed Computing) Workshop held online in September, 2020.

Advising as Teaching Best Practices Certificate, Spring, 2019

American Mathematical Society

- Invited to participate at the Discrete and Computational Geometry workshop held at Snowbird, Utah in June, 2012.

University of Wisconsin - Oshkosh Faculty Development

- Small Grant, to travel to San Antonio to complete research with Professor Matt Gibson, January 2015, January 2016, January 2017 and January 2019. Small grant to partially fund travel to Malmö, Sweden to work with Professor Bengt Nilsson, March 2019.
- Off-Campus Grant, to attend a special workshop on algorithms are SIGCSE 2014.
- Faculty Development Research Grant, Summer 2011, Summer 2012, Summer 2013, Summer 2017.

SERVICE

Departmental Service
- Committee Member, Bachelors of Science in Cybersecurity Committee: 2020 - 2021
- Computer Science Club Advisor: 2011 - 2018, Co-Advisor with Professor Hannah Hillberg: 2018 - 2021
- Committee Member, Computer Science Curriculum Committee: 2012 - 2013, 2015 - 2020
- Website and Social Media Committee: 2011 - Present
- Coordinator, Microsoft Developer/Designer Network Academic Alliance: 2010 - 2019
- Committee Member, Computer Science Assessment Committee: 2012 - 2015, 2020 - Present
- Supervised Student Travel, Iowa Computing Conference: 2017, 2019
- Committee Member, Computer Science Program Review Subcommittee: 2012
- Assistant, Academic Open House: 2018, 2019, 2020
- Assistant, Decision 2012 : 2012
- Assistant, Titan Preview Days: 2011, 2012, 2014, 2016, 2017
- Search Committee Member, Tenure Track Hire: 2012, 2017, 2018, 2019
- Search Committee Member, ADA Search Committee: 2019
- Committee Member, Grievance Committee: 2011
- Lab Assistant, Computer Science UW-Oshkosh High School Orientation Day: 2010, 2011

University Level
- Workshop Member, UW-Oshkosh Academic Program Workshop: 2020
- Committee Member, Graduate Council: 2015 - Present
- Team Fellow, Cross Country: 2018 - Present
- Reviewer, Faculty Development Board: 2017 - Present
- Committee Member, Computer Science Scholarship Committee: 2019 - Present

- Committee Member, 4imprint Information Technology Scholarship Committee: 2019
- Initial Member, Masters of Cybersecurity Program Development: 2019
- Team Fellow, Women's Tennis: 2017 - 2018
- Committee Member, Assessment Workshop: 2017
- Committee Member, Dr. Ronald Akin Scholarship Committee: 2017, 2018, 2019
- Committee Member, Distinguished Research Award Review Committee: 2015 - 2017
- Academic Director, Masters of Data Science Program: 2014 - Present
- Member, Masters of Data Science Program Development: 2014 - 2015
- Committee Member, Daniel Raaf Scholarship Committee: 2011 - 2015
- Committee Member, Student Conduct Panel: 2011 - 2016
- Paper Reviewer, Oshkosh Scholar: 2013
- Committee Member, Chancellors Award for Excellence Committee: 2011

Community
- Guest Lecturer, Malmö University, High Performance Cloud Computer with Big Data: 2021
- Invited Speaker, Marquette University, Colloquium Series: 2021
- Paper Reviewer, Discrete Mathematics & Theoretical Computer Science: 2020, 2021
- Paper Reviewer, Journal on Computational Geometry: 2020
- Guest Co-Editor with Bengt Nilsson and Paweł Żyliński, Journal Algorithms, Special Issue on Algorithms for Travelling Salesperson Problem: 2020 - present
- Invited Speaker, University of Wisconsin - Milwaukee, Washington County, S.T.E.M. Seminar: 2020
- Ignite Technical Reviewer, WiSys: 2020
- Paper Reviewer, International Journal of Foundations in Computer Science: 2020
- Book Reviewer, Prospect Press, Big Data Technologies for Business: 2019
- Paper Reviewer, Journal on Computational Geometry: Theory and Applications: 2019, 2020
- Session Chair, Scandinavian Workshop on Algorithms and Theory: 2018
- Program Committee Member, Canadian Conference on Computational Geometry: 2018
- Paper Reviewer, Transactions on Algorithms: 2017, 2018
- Session Chair, Canadian Conference on Computational Geometry: 2017
- Session Chair, European Workshop on Computational Geometry: 2017
- Program Committee Member, European Workshop on Computational Geometry: 2017
- Paper Reviewer, Symposium on Computational Geometry: 2017
- External Dissertation Committee Member, Qing Wang PhD in Computer Science, University of Texas - San Antonio: 2016
- Paper Reviewer, Discrete & Computational Geometry: 2016
- Paper Reviewer, Theoretical Computer Science: 2014, 2015
- Paper Reviewer, Conference on Algorithms and Discrete Applied Mathematics: 2014
- Paper Reviewer, European Journal of Operations Research: 2014
- Paper Reviewer, Computer Science Symposium in Russia: 2014
- Paper Reviewer, Information Processing Letters: 2013
- Paper Reviewer, European Symposium on Algorithms: 2013

WORKSHOP PUBLICATIONS

Improved Approximation Bounds for Guarding Monotone Polygons with Half-Guards. (with Hannah Miller Hillberg and Alex Pahlow). EuroCG 2021.

Guarding Monotone Polygons with Vertex Half-Guards is NP-Hard. (with Matt Gibson and Matthew Rayford). EuroCG 2018.

PUBLICATIONS   Recognizing and Reconstructing Pseudo-Polygons from their Visibility Graphs. (with Safwa Ameer, Matt Gibson and Qing Wang). In Submission.

Terrain Visibility Graphs: Persistence is Not Enough (with Safwa Ameer, Matt Gibson, Sean Soderman and Qing Wang). SoCG 2020.

A Note on Guarding Staircase Polygons. (with Matt Gibson, Bengt Nilsson, Matt Rayford and Paweł Żyliński). CCCG 2019.

Guarding Monotone Polygons with Half-Guards. (with Matt Gibson and Matthew Rayford). CCCG 2017.

The VC-Dimension of Visibility on the Boundary of a Simple Polygon. (with Matt Gibson and Qing Wang). ISAAC 2015.

A Characterization of Visibility Graphs for Pseudo-Polygons. (with Matt Gibson and Qing Wang). ESA 2015.

On the VC-Dimension of Monotone Polygons. (with Matt Gibson and Qing Wang). CCCG 2014.

The Complexity of Guarding Monotone Polygons. (with Bengt Nilsson). CCCG 2012.

The Complexity of Guarding Terrains. (with James King.) SODA 2010.

An Approximation Scheme for Terrain Guarding. (with Matt Gibson, Gaurav Kanade and Kasturi Varadarajan). In RANDOM-APPROX 2009.

Improved Approximations for Guarding 1.5-Dimensional Terrains. (with Khaled Elbassioni, Domagoj Matijević, Julián Mestre and Domagoj Ševerdija). STACS 2009.

On Metric Clustering to Minimize Sum of Radii. (with Matt Gibson, Gaurav Kanade, and Kasturi Varadarajan). SWAT 2008.

On Clustering to Minimize Sum of Radii. (with Matt Gibson, Gaurav Kanade, Imran Pirwani, and Kasturi Varadarajan). SODA 2008.

JOURNAL
PUBLICATIONS   The VC-dimension on visibility on the boundary of monotone polygons. (with Matt Gibson, and Qing Wang). Computational Geometry Theory and Applications: Special issue on the 26th Canadian Conference on Computational Geometry (CCCG), Volume 77, 2019.

Guarding Terrains via Local Search. (with Matt Gibson, Gaurav Kanade, and Kasturi Varadarajan). JoCG, Volume 5, Number 1. 2014.

Approximate Guarding of Monotone and Rectilinear Polygons. (with Bengt Nilsson). Algorithmica, Volume 66, Number 3. 2013.

On Clustering to Minimize the Sum of Radii. (with Matt Gibson, Gaurav Kanade, Imran Pirwani, and Kasturi Varadarajan). SIAM Journal on Computing, Volume 41, Issue 1. 2012.

Terrain Guarding is NP-Hard. (with James King). SIAM Journal on Computing, Volume 40, Issue 5. 2011.

Improved Approximations for Guarding 1.5-Dimensional Terrains. (with Khaled M. Elbassioni, Domagoj Matijević, Julián Mestre, Domagoj Ševerdija). Algorithmica, Volume 60, Number 2. 2011.

On Metric Clustering to Minimize the Sum of Radii. (with Matt Gibson, Gaurav Kanade, Imran Pirwani, and Kasturi Varadarajan). Algorithmica, Volume 57, Number 3. 2010.

Clustering to Minimize the Sum of Radii. (with Matt Gibson, Gaurav Kanade, Imran Pirwani, and Kasturi Varadarajan). Special issue of Algorithmica for SWAT 2008.

Technical Skills   Languages: C, C++, C#, Java, JavaScript, Lisp, ML, Perl, PHP, Prolog, Python, R, Scala, SQL, and Visual Basic, among others.

Applications: Amazon Web Services (EC2, EMR, S3, etc), Google Cloud, Microsoft Azure, LaTeX, Hadoop, Spark, TeX and other common productivity packages for Windows and Linux platforms.