

Tarik Crnovrsanin*

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Education

UNIVERSITY OF CALIFORNIA, DAVIS

DAVIS, CALIFORNIA

PhD, Computer Science

Sep 2011–Jun 2019

Advisor: Dr.Kwan-Liu Ma Professor, Computer Science

Thesis: Visualizing Large Complex Streaming Networks

UNIVERSITY OF CALIFORNIA, DAVIS

DAVIS, CALIFORNIA

Master's, Computer Science

Jan 2009–Jun 2011

Advisor: Dr.Kwan-Liu Ma Professor, Computer Science

UNIVERSITY OF CALIFORNIA, DAVIS

DAVIS, CALIFORNIA

Bachelor's, Computer Science

Jun 2004–Dec 2008

Research Summary

My research spans network, information visualization, and algorithms. Specifically, it focuses on the implementation of new algorithms and systems to improve visual understanding and analysis.

Professional Experience

DEPARTMENT OF COMPUTER SCIENCE

University of California, Davis, CA

Research Associate (WOS)

August 2020–Present

Research focus: Exploring new visual metaphors for complex graphs, impact of animation on streaming graphs and predictive analysis for fire susceptibility.

OUT OF DARTS

California, USA

3D Model Designer, Web Developer, Consultant

May 2017–present

Research and development of new 3D printed products from concept to full production. Develop visual tools to allow shoppers to easily customize and view their purchases.

DEPARTMENT OF COMPUTER SCIENCE

University of California, Davis, CA

Graduate Student Researcher (Advisor: Prof. Kwan-Liu Ma)

Jan 2009 – Jun 2019

Research focus: Visualizing large complex streaming networks, including systems, layout methods and new metrics. Exploring new metrics and methods to analyze radio frequency and reduce eye fatigue.

NOKIA RESEARCH LAB

California, USA

Software Intern

May 2009–Aug 2009

Created a contextual tourist map as a web-based application that leverages Google Maps, JavaScript, Python and SQL. Awarded U.S. Patent for the work.

DEPARTMENT OF COMPUTER SCIENCE

University of California, Davis, CA

Undergraduate Research Assistant (Advisor: Prof. Kwan-Liu Ma)

Jun 2008 – Dec 2008

Research focus: Exploring how to best visualize temporal network data. Best systems to facilitate in exploration of said networks. Created new visualization to summarize temporal movement data into a single static representation.

*Full Name: Tarik Esad Crnovrsanin

ADVANCEV

Software Tester

Remote

Nov 2007–Oct 2008

Evaluated the performance and usability of an application that provides previews for videos and images on Microsoft Vista.

Teaching Experience

DEPARTMENT OF COMPUTER SCIENCE

University of California, Davis, CA

Lecturer, ECS 32A Intro to Programming

Summer 1, 2019

Developed lectures, assignments and taught an 8 week course.

DEPARTMENT OF COMPUTER SCIENCE

University of California, Davis, CA

Guest Lecturer

Winter, Spring, and Fall Quarters, 2019

Gave lectures on graph layouts and network visualizations.

DEPARTMENT OF COMPUTER SCIENCE

University of California, Davis, CA

Teaching Assistant, ECS 272 Information Visualization

Winter 2018, Winter 2019

Developed the class with professor through assignments and projects. Advised student on design projects and graded said projects.

Teaching Assistant, ECS 10 Intro to Programming

Spring 2018

Lead all four discussion sections and graded exams. Developed problem sets and lectures for said discussions.

Teaching Assistant, ECS 30 Programming and Problem Solving

Winter 2015

Lead all four discussion sections and graded exams. Developed problem sets and lectures for said discussions.

INDEPENDENT CONTRACTOR

Davis, CA

Tutor

2009 - 2016

Tutored undergraduate students in Python, C, and C++.


Publications

My publications listed below are separated into the following categories:

J_n : Journal publications, indexed as J1, J2, ... Jn.

C_n : Conference publications, indexed as C1, C2, ... Cn.

Other notations and their meanings when shown against a paper:

 : The paper has received an award or honorable mention.

Journal Publications (refereed)**J4 Concise provenance of interactive network analysis.**

Fujiwara T., Crnovrsanin, T., and Ma KL. *Visual Informatics* 2(4), pp. 213–224, 2018

J3 An Incremental Layout Method for Visualizing Online Dynamic Graphs.

Crnovrsanin T., Chu J., and Ma KL. *Journal Graph Algorithm Application (JGAA)*, 21(1), pp. 55–80, 2017.

J2 Visualization Techniques for Categorical Analysis of Social Networks with Multiple Edge Sets.

Crnovrsanin T., Muelder C., Faris B., Felmlee D., and Ma KL. *Social Networks*, vol. 37, pp. 56–64, 2014.

J1 Visual Reasoning about Social Networks using Centrality Sensitivities.

Correa C., Crnovrsanin, T., and Ma KL. *IEEE Transactions Visualization Computer Graph(TVCG)*, vol. 18, pp. 106–120, 2012.

Conference Publications (refereed)**C10 Staged Animation Strategies for Online Dynamic Networks.**

Crnovrsanin, T., Shilpika, S., Chandrasegaran, S., and Ma, K.-L. The *IEEE Information Visualization Conference*, 2020.

C9 An Interactive System for Exploring Historical Fire Data

Gomov M., Crnovrsanin, T., Dasu K. and Ma KL. *IEEE Pacific Visualization Symposium (PacificVis)*, pp. 277–281, 2019.

C8 What Would a Graph Look Like in this Layout? A Machine Learning Approach to Large Graph Visualization

Kwon OH., Crnovrsanin, T., and Ma KL. *IEEE Transaction Visualization Computer Graph*, 24(1), pp. 478–488, 2018.

🏆C7 An Incremental Layout Method for Visualizing Online Dynamic Graphs.

Crnovrsanin, T., Chu J., and Ma KL. *Conference on Graph Drawing and Network Visualization*, pp. 16–29, 2015.

C6 A System for Visual Analysis of Radio Signal Data.

Crnovrsanin, T., Muelder C., and Ma KL. *Conference on Visual Analytics Science and Technology (VAST)*, pp. 33–42, 2014.

C5 Stimulating a Blink: Reduction of Eye Fatigue with Visual Stimulus.

Crnovrsanin, T., Wang Y., and Ma KL. *Conference on Human Factors in Computing Systems(CHI)*, pp. 33–42, 2014.

C4 Egocentric Storylines for Visual Analysis of Large Dynamic Graphs.

Muelder C., Crnovrsanin, T., Sallaberry A., and Ma KL. *IEEE Workshop on Big Data Visualization*, pp. 56–62, 2013.

C3 Visual Recommendations for Network Navigation.

Crnovrsanin, T., Liao I., Wu Y., and Ma KL. In *Proceedings of the Eurovis*, vol. 30, pp. 1081–1090, 2011.

C2 Social Network Discovery based on Sensitivity Analysis.

Crnovrsanin, T., Correa C., and Ma KL. In *Proceedings International Conference of Advances in Social Networks Analysis and Mining (ASONAM)*, pp. 107–112, 2009.

C1 Proximity-based Visualization of Movement Trace Data.

Crnovrsanin, T., Muelder C., Correa C., and Ma KL. *Conference on Visual Analytics Science and Technology (VAST)*, pp. 11–18, 2009.

Other Publications (non-archival papers, short papers, extended abstracts, and posters)

N1 Crnovrsanin T. Visualizing Large Complex Streaming Networks, Thesis *University of California, Davis*, 2019.

Awards and Recognition

- Best Paper Award, 23rd International Symposium on Graph Drawing and Network Visualization 2015 (paper: C7)
- GGCS Best Graduate Researcher Award 2015. University of California, Davis
- GGCS Graduate Fellowship, 2009, 2014. University of California, Davis
- Intuitive Social Network Graphs. VAST 2008 Challenge. C. Correa, C. Muelder, T. Crnovrsanin, J. Shearer, KL. Ma.

Patents

- Method and Apparatus for Providing Contextual Rendering of a Map. V. Setlur, C. Kuo, A. Battestini, T. Crnovrsanin. U.S. Patent: 20110063301 Filed Sep 17, 2009

Student Supervision and Mentoring

- Kirby Zhou, Undergraduate, UC Davis. Project: *Web-based network visualization tool for social scientist.*, June 2020–current. (Advisor: Prof. Kwan-Liu Ma)
- Shidi Yu, M.S. Student, UC Davis. Project: *Exploring social networks through the use of sensitivity analysis.* June 2020–current. (Advisor: Prof. Kwan-Liu Ma)
- Yuqi Yang, Undergraduate, UC Davis. Project: *Web-based network visualization tool for social scientist.*, Jun 2019–Jun 2020. (Advisor: Prof. Kwan-Liu Ma)
- Jacqueline Chu, M.S. Student, UC Davis. Project: *An Incremental Layout Method for Visualizing Online Dynamic Graphs.* Crnovrsanin, Jan 2015–Jul 2015. Related paper: C7. (Advisor: Prof. Kwan-Liu Ma)

Service

PROGRAM COMMITTEE MEMBER

- Short Papers, IEEE Vis Conference, 2020.

REVIEWER

- IEEE Big Data Conference, 2020.
- IEEE Vis Conference, 2020, 2019, 2018.
- Graph Drawing Conference, 2020, 2019, 2018, 2016.
- IEEE BigMM 2016.
- IEEE BigDataService 2015.
- IEEE LDAV 2015.
- ACM HPC/SIGGRAPH Asia 2015
- IEEE VISSOFT 2014.

Press

- CNN, October 2011. “CNN study: Schoolyard bullies not just preying on the weak”.
Relevant publications: J2.

Personal Information

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PHONE: +1 916 995 2025
SCHOLAR PAGE: <https://scholar.google.com/citations?hl=en&user=iVU6xxwAAAAJ>

Technical Skills

USER EXPERIENCE

Survey design, Interface design, User Evaluations

PROGRAMMING

C++, Python, JavaScript (React, JQuery, Three.js), HTML, CSS, OpenGL, WebGL, Processing, Arduino, Shopify's Lua

PRODUCT DESIGN & MODELING

Fusion 360, 123Design, & Maya

DATABAASE MANAGEMENT SYSTEMS

Mysql, PostgreSQL, & MongoDB.

References

Kwan-Liu Ma, Ph.D

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Department of Computer Science
University of California, Davis
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Robert Faris

Professor, Department of Sociology
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