

Marlon D. Twyman II

MarlonT2@u.northwestern.edu ♦ 937-830-2193 ♦ <https://www.linkedin.com/in/marlon-twyman/>

EDUCATION

NORTHWESTERN UNIVERSITY (Evanston, IL)

Fall 2018 Ph.D. candidate, Technology and Social Behavior (joint program in Dept. of Communication Studies and Dept. of Electrical Engineering and Computer Science)

Committee: Noshir Contractor, Leslie DeChurch, Daniel Newman, Edward (Ned) Smith, Uri Wilensky

WRIGHT STATE UNIVERSITY (Dayton, OH)

Spring 2012 M.S. Biomedical Engineering

Spring 2010 B.S. Biomedical Engineering, *Cum Laude*, University Honors Scholar

RESEARCH INTERESTS

Social networks

Diversity in groups & teams

Team formation/Team assembly

Human-computer interaction

Computational social science

Computer-support cooperative work

AWARDS, FELLOWSHIPS, AND SCHOLARSHIPS

2017 Donald H. and Carolyn E. Ecroyd Fellowship, Northwestern University School of Communication

2016 Best Student Paper – Runner-up: Interdisciplinary Network for Group Research Conference, Helsinki, Finland

2014 Google, Inc. Travel Grant: National Society of Black Engineers (NSBE) Professional Development Conference, Phoenix, AZ

2013 GEM Fellowship (PhD Funding/5 years), The National GEM Consortium, Alexandria, VA

2010 Air Force Research Lab/DAGSI Research Fellowship, Dayton Area Graduate Studies Institute, Dayton, OH

2009 NASA Ohio Space Grant Consortium, Senior Scholarship

2008 Choose Ohio First Scholarship, University System of Ohio

2007 Wright STEPP Full-Tuition Scholarship, Wright State University (renewed 3 years until 2010)

2007 NSF Glenn Stokes Research Internship, NSF Ohio Science and Engineering Alliance

2006 Competitive Honors Scholarship, Honors College, WSU (renewed 4 years until 2010)

2006 C.J. McLin Student Leadership Development Scholarship, WSU (renewed 4 years until 2010)

2006 Horizons in Medicine Full-Tuition Scholarship, WSU

RESEARCH EXPERIENCE

2013-2018 NORTHWESTERN UNIVERSITY Research Assistant

Social networks in organizations **Science of Networks in Communities (SONIC) Lab** (2014-current)

Advisor: Dr. Noshir Contractor

Researched organizational topics with focus on social network analysis, team assembly, and network search strategies (finding teammates and collaborators)

Human-computer interaction **Neuroscience and Robotics (NxR) Lab: Surface Haptics Group** (Spring 2014)

Primary Investigator: Dr. Ed Colgate

Prototyped and developed software in Android for TPaD technology (touchscreen interfaces)

Inclusive Technology Lab (Fall 2013—Summer 2014)

Primary Investigator: Dr. Anne Marie Piper

Designed and developed Android applications for a wearable user interface for visually impaired people

PUBLICATIONS & PRESENTATIONS

Book Chapters

1. **Twyman, M.** & Contractor, N. (in press). State of the Science: Team Assembly. In K. Hall, A. Vogel, & R. Croyle (Eds.), *Strategies for Team Science Success: Handbook of Evidence-based Principles for Cross-disciplinary Science and Practical Lessons Learned from Health Researchers, Part V: Team Formation, Chapter 17*. National Institutes of Health. Springer.

Working Papers

2. **Twyman, M.**, Ma, L., Srivatsa, M., & Contractor, N. Search Strategies to Assemble Teams. Target Journal: *Management Science*
3. **Twyman, M.**, Newman, D., DeChurch, L., & Contractor, N. Choosing Teammates via Online Recommender Systems: The Roles of Online Recommendations and Prior Collaboration. Target Journal: *Organization Science*

Published Conference Proceedings

4. **Twyman, M.**, Keegan, B. C., & Shaw, A. (2017). Black Lives Matter in Wikipedia: Collective Memory and Collaboration Around Online Social Movements. In *Proceedings of the 2017 ACM Conference on Computer Supported Cooperative Work and Social Computing* (pp. 1400–1412). New York, NY, USA: ACM. <https://doi.org/10.1145/2998181.2998232> [acceptance rate: 35%]
5. **Twyman, M.**, Mullenbach, J., Shultz, C., Colgate, J. E., & Piper, A. M. (2015). Designing Wearable Haptic Information Displays for People with Vision Impairments. In *Proceedings of the Ninth International Conference on Tangible, Embedded, and Embodied Interaction* (pp. 341–344). New York, NY, USA: ACM. <https://doi.org/10.1145/2677199.2680578> [acceptance rate: 28%]

Conference Presentations & Posters

6. Gómez-Zar4, D., Ng, J., **Twyman, M.**, DeChurch, L., Andreoli, S., Contractor, N. (2018, July). Social Cognition and Team Assembly: Competence, Warmth, or Embeddedness. Paper presented at the *Interdisciplinary Network for Group Research Conference*, Bethesda, MA, July 18-21, 2018.
7. **Twyman, M.**, Mesmer-Magnus, J., Lungeanu, A., DeChurch, L. A., & Contractor, N. S. (2018, July). The Emergence and Development of Crew Shared Mental Models: An Agent-Based Model. Paper presented at the *Interdisciplinary Network for Group Research Conference*, Bethesda, MA, July 18-21, 2018.
8. **Twyman, M.**, Mesmer-Magnus, J., Lungeanu, A., DeChurch, L. A., & Contractor, N. S. (2018, July). The Emergence and Development of Crew Shared Mental Models: An Agent-Based Model. Paper presented at *2018 International Conference on Computational Social Science (IC2S2)*. Evanston, Illinois, July 12-15, 2018.
9. Gómez-Zar4, D., Ng, J., **Twyman, M.**, DeChurch, L., Contractor, N. (2018, March). Social Cognition and Team Assembly: Competence, Warmth, or Embeddedness. Paper presented at the *ATLAS Teams Research Incubator Weekend*, Evanston, IL, USA, March 16-18, 2018.
10. **Twyman, M.**, Ma, L., Srivatsa, M., Cansever, D., & Contractor, N. (2017, May). Searching Networks to Assemble Teams. Paper presented at *Army Research Laboratory Network Science Collaborative Technology Alliance Annual Technical Meeting*, Newark, Delaware, May 2-3, 2017.
11. DeChurch, L.A., Schultz, M., Johnson, J., Contractor, N.S., Mesmer-Magnus, J., Plummer, G., **Twyman, M.** (2017, January). Structured Text Analysis for Evaluating Shared Cognition. Paper presented at the *NASA Human Research Program Investigators' Workshop*, Galveston, TX, January 23-26, 2017.

12. **Twyman, M.**, Newman, D., DeChurch, L., & Contractor, N. (2016, October). Networks of Computer-Mediated Team Assembly. Paper presented at the *Organizational Communication Mini-Conference 2016*, Evanston, Illinois, September 30-October 2, 2016.
13. **Twyman, M.**, Newman, D., DeChurch, L., & Contractor, N. (2016, July). The Ties that Form Teams: Self-Organization, Homophily, and Multiplexity. Paper presented at *Interdisciplinary Network for Group Research Conference*, Helsinki, Finland, July 14-16, 2016. ***Runner-up: "Best Student Paper" Award**
14. **Twyman, M.**, Wax, A., DeChurch, L., & Contractor, N. (2015, July). Looking for Leadership: Understanding Team Assembly in a Web Technology. In A. Wax and M. Twyman (co-chairs), *Technologies for Studying and Enabling Teams*. Symposium conducted at the *Interdisciplinary Network for Group Research Conference*, Pittsburgh, Pennsylvania, USA, July 23-25, 2015.
15. **Twyman, M.**, Newman, D., DeChurch, L.A., & Contractor, N.S. (2018, April). Inviting Your Next Teammate: Algorithms & Acquaintances. Poster presented at the *Society for Industrial and Organizational Psychology (SIOP) Annual Conference*, Chicago, IL, April 19-21, 2018.
16. **Twyman, M.**, Lungeanu, A., DeChurch, L., & Contractor, N. (2018, January). The emergence and development of crew shared mental models: An agent-based model. Poster presented at the *NASA 2018 Human Research Program Investigators' Workshop*, Galveston, TX, January 22-25, 2018.
17. Contractor, N., DeChurch, L., Antone, W., **Twyman, M.**, Gibson, Z., Sawant, A., Gado, H., & Bell, S. (2018, January). Teamstar: A Tool for evaluating and mitigating space team risk. Poster presented at the *NASA 2018 Human Research Program Investigators' Workshop*, Galveston, TX, January 22-25, 2018.
18. DeChurch, L., Park, P., Lungeanu, A., **Twyman, M.**, & Contractor, N. CREST: Crew Recommender for Effectively Switching Tasks. (2018, January). Poster presented at the *NASA 2018 Human Research Program Investigators' Workshop*, Galveston, TX, January 22-25, 2018.
19. **Twyman, M.**, Newman, D., DeChurch, L., & Contractor, N. (2017, October). Inviting Your Next Teammate: Algorithms and Acquaintances. Poster presented at *Organizational Communication Mini-Conference 2017*, Athens, Ohio, October 13-15, 2017.
20. **Twyman, M.**, Keegan, B. C., & Shaw, A. (2017, July). Black Lives Matter in Wikipedia: Collective Memory and Collaboration Around Online Social Movements. Poster presented at *2017 International Conference on Computational Social Science (IC2S2)*. Cologne, Germany, July 10-13, 2017.
21. **Twyman, M.**, DeChurch, L., & Contractor, N. (2017, June). Using a Network Approach for Modeling Shared Cognition of Astronaut Teams. Poster presented at *NetSci 2017 International School and Conference on Network Science*, Indianapolis, Indiana, June 19-23, 2017.
22. **Twyman, M.**, Ma, L., Srivatsa, M., Cansever, D., & Contractor, N. (2017, June). Searching Networks to Assemble Teams. Poster presented at *NetSci 2017 International School and Conference on Network Science*, Indianapolis, Indiana, June 19-23, 2017.
23. **Twyman, M.**, DeChurch, L. & Contractor, N. (2016, April). The Impact of Homophily and Multiplex Networks on the Assembly of Teams. Poster presented at *Sunbelt XXXVI Conference, International Network for Social Network Analysis*, Newport Beach, CA, April 5-10, 2016.
24. DeChurch, L., Contractor, N., Johnson, J., Mesmer-Magnus, J., Plummer, G., **Twyman, M.**, Niler, A., Larson, L. & Hernandez, I. (2016, February). SCALE: Shared Cognitive Architecture for Long-Distance Exploration. Poster presented at *NASA 2016 Human Research Program Investigators' Workshop*, Galveston, TX, February 8-11, 2016.
25. **Twyman, M.**, Wax, A., DeChurch, L., & Contractor, N. (2015, June). Emergence of Assembly & Leadership Networks in Teams. Poster presented at *NetSci 2015 International School and Conference on Network Science*, Zaragoza, Spain, June 1-5, 2015.

ADDITIONAL PUBLICATIONS & PRESENTATIONS

Refereed Journals

26. Eyink, K., Grazulis, L., Mahalingam, K., Shoaf, J., Hart, V., Esposito, D., Hoelscher, J., **Twyman, M.**, Tomich, D. (2012). Nanofabricated quantum dot array formation through annealing of nano-patterned planar InAs. *Journal of Vacuum Science and Technology. Materials, Processing, Measurement, & Phenomena : JVST B.*,30(4), 041806. <https://doi.org/10.1116/1.4731471>
27. Eyink, K., Grazulis, L., **Twyman, M.**, & Mahalingam, K. (2010). Study of the driving force for the self-assembly of heterojunction quantum dots (zero D molecules) using finite element analysis. *Journal of Vacuum Science and Technology. Materials, Processing, Measurement, & Phenomena: JVST B.*,28(3), C3C33-C3C36. <https://doi.org/10.1116/1.3273902>

Published Conference Proceedings

28. Mahalingam, K., Eyink, K., **Twyman, M.**, Shoaf, J., & Grazulis, L. (2010). Strain Relaxation in Planar InAs Epitaxial Layers Studied by High-Resolution Transmission Electron Microscopy. *Microscopy and Microanalysis*, 16(S2), 1786-1787. <https://doi.org/10.1017/S1431927610059702>
29. Eyink, K., Grazulis, L., Mahalingam, K., **Twyman, M.**, Shoaf, J., Hoelscher, J., ... Tomich, D. (2010). Shape changes in patterned planar InAs as a function of thickness and temperature (Vol. 7610, p. 761000-761000-8). <https://doi.org/10.1117/12.845939>

Conference Presentations & Posters

30. **Twyman, M.** (2010, April). Sensor-activated electromagnetic track. Paper presented at *Ohio Space Grant Consortium Research Project Symposium*, Cleveland, Ohio, USA, April 16, 2010.
Eyink, K., Grazulis, L., **Twyman, M.**, & Mahalingam, K. (2009, August). A Study of the Driving Force for the Self Assembly of Heterojunction Quantum Dots (Zero-D Molecules) Using Finite Element Analysis. Paper presented at *26th North American Molecular Beam Epitaxy Conference*, Princeton University, New Jersey, USA, August 9-12, 2009.
31. **Twyman, M.**, Bozeman, J., Mawasha, P.R., & Yelamarthi, K. (2007, August). A Parametric Study on the Material Properties of a Shape Memory Polymer. Poster presented at *Ohio Student Research Forum*, Wright State University, Ohio, USA, August 9-10, 2007.

TEACHING EXPERIENCE

2015-2017 NORTHWESTERN UNIVERSITY (Evanston, IL) Teaching Assistant

Kellogg School of Management, McCormick Engineering, School of Communication

Social networks, Organizations, Executive training Assisted in the instruction of courses for MBA, executives, undergraduate, and M.S. students
Prepared course assignments, administered classroom activities, designed experiential learning exercises, created lecture materials, graded assignments, and held office hours.

- **Design of Networks** with Noshir Contractor (Fall 2015 & Fall 2016), *Kellogg School of Management & McCormick Engineering*: MBA/M.S. students in Design Innovation (TA rating: 4.8/6.0)
- **Social Network Analysis** with Noshir Contractor (Spring 2016), *McCormick Engineering & School of Communication*: Undergraduate students across engineering and communication (TA rating: 5.7/6.0)
- **Networks and Innovation** with Noshir Contractor and Paul Leonardi (Dec. 2016 & Nov. 2017), *Kellogg School of Management Executive Education*: Executives participating in the Leading into The Future: Managing in a Changing World program (no TA ratings collected)

PROFESSIONAL EXPERIENCE

Summer 2016 IBM T.J. WATSON RESEARCH CENTER (Yorktown Heights, NY) Research Intern
Cognitive Distributed Analytics

Algorithms, Simulation Manager: Dr. Mudhakar Srivatsa, Mentor: Dr. Liang Ma
Designed and implemented computational models for expertise search in networks when assembling problem-solving teams

Summer 2013 THE MITRE CORPORATION (McLean, VA) Consulting Intern
Infrastructure, Operations, & IT Service Management

Healthcare IT, Strategy Developed internal materials for potential impact of automatic network discovery on telemental health group therapy practices for veterans with post-traumatic stress disorder (PTSD)

BJC HEALTHCARE (St. Louis, MO) Intern

Spring 2013 Project Management in Clinical Engineering/Assets Management

Project management Developed software for resource productivity tracking to streamline workflow for Displaced Assets Program (program saves **\$4 million** annually), and aided in buying medical devices (**\$7 million** purchase)

2012 Strategy and Development in Center for Clinical Excellence

Strategy, Process improvement Collected data and facilitated development of new processes in two hospitals, developed metrics and data visualization dashboard for process optimization of Displaced Assets Program
Performed administrative tasks: résumé screening, interviewing, coordinating events, and media creation

Summer 2011 JOINT CENTER FOR POLITICAL & ECONOMIC STUDIES (Wash., DC) Policy Intern
Media and Technology Institute

Mentor: Dr. Nicol Turner-Lee (now at Brookings Institution)

Technology policy Researched policy on Broadband Internet, broadband adoption in USA, and networking architecture

WRIGHT PATTERSON AIR FORCE BASE (Dayton, OH) Research Assistant

2010-2012 Human Performance Wing (funded M.S. in Biomedical Engineering)

Digital signal processing Analyzed EEG signals, processed MRI images, and designed user interface for a research CT scanner

Summer 2009 Sensors and Optics (funded by Chenega Federal Systems in Lorton, VA; Secret Clearance)

High-performance computing Conducted finite element modeling of semiconductor materials using super-computing cluster

2008—2012 Sensors and Optics (funded by Southwestern Ohio Council for Higher Education)

Hardware Prepared microscope samples, operated multiple high-end instruments, and

WRIGHT STATE UNIVERSITY Research Scholar

2009—2010 NASA Ohio Space Grant Consortium (“Senior Scholarship for Research” Award)

Sensors, Circuits Built a sensor-activated electromagnet track, implemented an alternative design at United Rehabilitation Services of Greater Dayton

Summer 2007 NSF Ohio SEA Glenn-Stokes (Undergraduate Research Intern)

Experimental design Designed and conducted experiment for material properties of shape memory polymers

ACADEMIC SERVICE

Program Committee:

Organizational Communication Mini-Conference 2016, Northwestern University, Evanston, IL

- Reviewed abstracts, created program and schedule, managed logistics, and coordinated events for a student-organized conference with over 100 attendees

Reviewing Duties:

Ad Hoc Journal Reviews: Small Group Research

Conferences: Academy of Management, Interdisciplinary Network for Group Research

University Service:

Child and Family Resources Advisory Board, The Graduate School at Northwestern University

- Developed strategies to increase engagement of graduate-student parents with university-provided funding and resources, including conception and implementation of new events and programming

PROFESSIONAL MEMBERSHIPS

Academy of Management

Association for Computing Machinery

Interdisciplinary Network for Group Research

International Network for Social Network Analysis

National Society of Black Engineers

Order of the Engineer

Tau Beta Pi Engineering Honor Society Ohio Mu Chapter

MENTORING

Undergraduates:

Brian Gee, Major: Industrial Engineering

Yixian (Amy) Wang, Major: Industrial Engineering and Mathematical Methods in the Social Sciences

SKILLS

I have used a variety of programming languages and software tools to perform network analysis, machine learning (ML), statistics, and human-computer interaction (HCI). These have included:

Programming: R, Python, Scala, Java, SQL, MongoDB, NetLogo, Android, C, MATLAB, Visual Basic

Software Tools: Gephi, igraph, PNet, RSIENA, statnet (Network Analysis); scikit-learn, Weka (ML)

Web Development/HCI: Javascript, Node.js, Processing, HTML/CSS, Arduino, Labview