

INTERESTS

Visual analytics, embodied interaction, generative art, human-computer interaction, large, high-resolution displays, visualization, graphics, computer science education

EDUCATION

Virginia Polytechnic Institute and State University — Ph.D., Computer Science, 2006 - 2011
Carnegie Mellon University — MS, Electrical and Computer Engineering, 2000 - 2002
Wesleyan University — BA, Computer Science and Theater, 1993 - 1997

ACADEMIC POSITIONS

MIDDLEBURY COLLEGE

ASSISTANT PROFESSOR OF COMPUTER SCIENCE, 2013 -

- The Algorithmic World [F20]
- Introduction to Computing [S20, S19, F16, F15, F14, S14, F13]
- Computer Architecture [F18, S16, F14, F13]
- Software Development [S21, F20, F19, S19, S17, F15]
- Computer Graphics [F16, S15]
- Information Visualization [F18, S16, S14]
- Generative Art (non-majors) [W14]
- Generative Art [S20]
- Usable Mobile Interfaces [F19, S17]
- Senior Thesis [S21, W21, S15,]

MOUNT HOLYOKE COLLEGE

VISITING ASSISTANT PROFESSOR OF COMPUTER SCIENCE, 2011 - 2013

- Introduction to Computer Science [F12, F11]
- Data Structures [S13, S12, F11]
- Operating Systems [F11]
- Computer Systems & Assembly [S12]
- Computer Graphics [S12]

KNOX COLLEGE

ASSISTANT PROFESSOR OF COMPUTER SCIENCE, 2002-2006

- Computer Science for Arts and Science [F05, S05, W04, S03, F02]
- Introduction to Computer Science [W03, F02]
- Computer Organization and Assembly Language [W06, W05]
- Programming Language Concepts [W05, F03]
- Operating Systems and Networks [S06, S05]
- Graphics [S06, S04, W03]
- Operating Systems [W06]
- Compilers and Interpreters [W04]
- Database Systems [F05, F03]
- Human / Computer Interaction [F04, S03]
- Special topics: Fundamentals of Computer Engineering [F04]

EDUCATION STAFF, CARNEGIE MELLON UNIVERSITY 2002

Assisted with senior-level capstone course, Advanced Digital Design.

OTHER POSITIONS

Head Electronics Technician & Production Crew, High Output Boston, MA 1997-2000
Shop Assistant & Production Crew, High Output Boston, MA 1996-1997
Freelance electrician, Goodspeed Opera House East Haddam CT 1994-1997

Theater & A/V Department Staff, Wesleyan University 1995-1997

SERVICE

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|-----------------------|--|
| Middlebury College | MiddData Steering Committee [Fall 20 -] Faculty Advisory Board: School in Spain [Fall 19 -] Academic Judiciary Board [Fall 16 - Spring 17, Fall 20 -] DLA Advisory Board [Fall 15 - Spring 17] Faculty mentor [2018-] Department liaison to DLA Department sysadmin group Department hiring committee [2014, 2016-2020] |
| Mount Holyoke College | Lab manager 2012-2013 |
| Virginia Tech | Founded of the Black Lab Committee [CHCI lab resources management] 2007-2011 |
| Knox College | ACM Programming Team coach 2003-2006 Cultural Events Committee 2004-2006 [Chair for 2005-2006] Department liaison to the library 2003-2006 Department Linux system administrator |
| Professional | Program Committee for VAST 2016 Program Committee for VIS Short papers 2020, 2021 Session Chair for VAST 2016 Reviewer for VIS 2021 Reviewer for SIGCHI 2008, 2011-2018 Reviewer for VAST 2011-2020 Reviewer for InfoVis 2010, 2012, 2014-2018, 2020 Reviewer for VAST Challenge 2011-2020 Reviewer for Interactive Tabletops and Surfaces 2007, 2015-2018 Reviewer for NordiCHI 2012, 2018, 2020 Reviewer for TVCG 2010, 2016-2017, 2019 Reviewer for Symmetry 2020 Reviewer for Informatics 2018 Reviewer for Information 2019 Reviewer for FGCS 2017 Reviewer for EuroVis 2015 Reviewer for International Journal of Geoinformation 2014 Reviewer for IEEE Computer 2013 Reviewer for CG&A 2013 Reviewer for ACM MultiModal Interfaces 2010 Reviewer for Journal of HCI 2011 Reviewer for UIST 2010 Photographer for CHI 2010 |
| Local | Helped draft revised Computer Science endorsement for Vermont Standards Board for Professional Educators 2018 |

AWARDS AND HONORS

- 2015 Award for Integrated Analysis Environment, IEEE VAST Challenge.
- 2011 Award for Novel Use of Large Screen Workspace to Support Analysis, IEEE VAST Challenge.
- 2010 Honorable Mention Award, ACM SIGCHI.
- 2009 Award for Special Contributions to the VAST Challenge Contest, IEEE VAST Challenge.
- 2001 Carnegie Mellon University ECE Department Teaching Assistant Award

PROFESSIONAL ORGANIZATIONS

Member of the Association for Computing Machinery, and the special interest groups for Human Computer Interaction (SIGCHI) and Computer Science Education (SIGCSE)

INVITED TALKS

- 2019-03-13 Middlebury College, Carol Rifelj Lecture Series, *Where's the Artist? Explorations in Generative Art*
- 2016-04-19 SUNY New Paltz, Harrington Stem Lectures, *Making Sense of it All*.
- 2016-04-12 Middlebury College, Rohatyn Center for Global Affairs, Future of the Past Series, *From Clockwork to Twitter: How Did We Get Here?*
- 2015-10-25 VAST Challenge Workshop, *Middguard at DinoFunWorld Award*
- 2015-04-02 Middlebury College, DLA Behind the Scenes, *Bespoke Visualization*.
- 2014-10-30 Middlebury College, Guest Lecture in NSCI 100, *Visualization and Visual Analytics*.

PANELS AND WORKSHOPS

- *Small Steps Towards Ungrading*, CTLR Learning Institute, 2021.
- *VAST Challenge beyond awards*, VAST Challenge Workshop, 2020.
- *Lessons from Women's College: What Works, What Doesn't, and What Will Work Elsewhere*, CCSC NE, 2015
- *Spatial Research and Digital Methods*, Clifford Symposium, Middlebury College, 2014

PUBLICATIONS

Journal Articles

- 2019 **C. Andrews**, R. Crouser, "Using the VAST Challenge in Undergraduate CS Research", in *The Journal of Computing Science in Colleges*, vol. 35, issue 3, p. 57-67, Oct. 2019.
- 2017 H. Chung, S. Dasari, S. Nandhakumar, and **C. Andrews**, "CRICTO: Supporting Sensemaking through Crowdsourced Information Schematization", in *VAST*, 2017.
- 2014 H. Chung, **C. Andrews**, C. North, "A Survey of Software Frameworks for Cluster-Based Large High-Resolution Displays", in *IEEE Transactions on Visualization and Computer Graphics*, vol. 20, no. 8, pp. 1158-1177, Aug. 2014.
- A. Endert, SM. Hossain, N. Ramakrishnan, C. North, P. Fiaux, **C. Andrews**, "The human is the loop: new directions for visual analytics." in *Journal of Intelligent Information Systems*, vol. 43, no. 3, pp. 411-435, Dec 2014.
- 2013 **C. Andrews**, C. North, "The Impact of Physical Navigation on Spatial Organization for Sensemaking." *IEEE Transactions on Visualization and Computer Graphics*. 2013;19(12):2207 - 2216.
- L. Bradel, A. Endert, K. Koch, **C. Andrews**, C. North, "Large High Resolution Displays for Co-Located Collaborative Sensemaking: Display Usage and Territoriality". *International Journal of Human-Computer Studies*. 2013;71(11):1078-1088.
- 2011 **C. Andrews**, A. Endert, B. Yost, and C. North, "Information Visualization on Large, High-Resolution Displays: Issues, Challenges, and Opportunities", *Information Visualization*, vol. 10, issue 4, pp. 341-355, 2011.
- 2009 L. Shupp, **C. Andrews**, M. Dickey-Kurdziolek, B. Yost, and C. North, "Shaping the display of the future: The effects of display size and curvature on user performance and insights," *Human-Computer Interaction*, vol. 24, pp. 230 – 272, January 2009.

- 2008 E. A. Fox, **C. Andrews**, W. Fan, J. Jiao, A. Kassahun, S. chia Lu, Y. Ma, C. North, N. Ramakrishnan, A. Scarpa, B. Scarpa-friedman, S. D, D. Shoemaker, V. Srinivasan, and S. Yang, "A digital library for recovery ... a digital library for recovery, research, and learning from April 16, 2007 at Virginia Tech," *Traumatology*, vol. 14, p. 20, April 2008.

Conference Proceedings

- 2019 **C. Andrews**, "An Embodied Approach to AI Art Creation", in *Creativity & Cognition*, 2019.
- 2012 A. Endert, L. Bradel, J. Zeitz, **C. Andrews**, C. North, "Designing large, high-resolution display workspaces", *AVI '12*, pp. 58-65.
- C. Andrews**, C. North, "Analyst's Workspace: An Embodied Sensemaking Environment for Large, High-Resolution Displays", *VAST '12*.
- 2011 K. Vogt, L. Bradel, **C. Andrews**, C. North, and D. Hutchings, "Co-located Collaborative Sensemaking on a Large High-Resolution Display with Multiple Input Devices", *Interact '11*, pp. 589-604, 2011.
- M. Hossain, **C. Andrews**, N. Ramakrishnan, and C. North, "Helping Intelligence Analyst's Make Connections", *AAAI*, 2011.
- A. Singh, A. Endert, **C. Andrews**, L. Bradel, R. Kincaid, and C. North, "Supporting the Cyber Analytic Process Using Visual History on Large Displays", *VizSec*, 2011
- A. Endert, **C. Andrews**, Y. Lee, and C. North, "Visual Encodings that Support Physical Navigation on Large Displays", *Graphics Interface* 2011
- A. Endert, P. Fiaux, H. Chung, M. Stewart, **C. Andrews**, and C. North, "ChairMouse: Leveraging natural Chair Rotation for Cursor Navigation on Large, High-Resolution Displays", *alt.chi* 2011
- 2010 H. Chung, S. Yang, N. Massjouni, **C. Andrews**, R. Kanna, and C. North, "VizCept: Supporting Synchronous Collaboration for Constructing Visualizations in Intelligence Analysis," in *IEEE VAST Symposium 2010*.
- C. Andrews**, A. Endert, and C. North, "Space to think: large high-resolution displays for sensemaking," in *CHI '10: Proceedings of the 28th international conference on Human factors in computing systems*, (New York, NY, USA), pp. 55-64, ACM, 2010. [Best paper honorable mention]
- 2009 D. Machaj, **C. Andrews**, and C. North, "Co-located many-player gaming on large high-resolution displays," *Computational Science and Engineering, IEEE International Conference on*, vol. 4, pp. 697-704, 2009.
- 2002 J. M. Paul, **C. P. Andrews**, A. S. Cassidy, and D. E. Thomas, "System-level modeling of a network switch SoC," in *ISSS '02: Proceedings of the 15th International Symposium on System Synthesis*, (New York, NY, USA), pp. 62-67, ACM, 2002.

Short Papers, Posters, Abstracts and Technical Reports

- 2016 **C. Andrews**, L. Taub, S. Ovitt, "Middguard at GASTech", *IEEE VAST Symposium*, 2016
- 2015 **C. Andrews** and J. Billings, "MiddGuard at DinoFun World", *IEEE VAST Symposium*, 2015
- 2011 **C. Andrews**, M. Hossain, S. Gad, N. Ramakrishnan, and C. North, "Analyst's Workspace: Protecting Vastopolis, *IEEE VAST Symposium*, 2011 [Award "Novel use of large screen workspace to support analysis"]
- 2009 *Abstract*: A. Endert, **C. Andrews**, G. A. Fink, and C. North, "Professional analysts using a large, high-resolution display," in *IEEE VAST Symposium*, 2009. [Award "Special Contributions to the VAST Challenge Contest".]

C. North, A. Endert, **C. Andrews**, and G. Fink, "The Visualization Pipeline is Broken," Pacific Northwest National Laboratories report number PNNL-SA-65619, 2009.

2007 *Abstract:* **C. Andrews**, C. Miller, T. Henry, and F. Quek, "Cardtable: An embodied tool for analysis of historical information," in *Second IEEE International Workshop on Horizontal Interactive Human-Computer Systems, TableTop 2007*, 2007.

STUDENT RESEARCH ASSISTANTS

| | |
|-------------|--|
| Summer 2018 | Fiona Sullivan '19 and Selena Ling '19 |
| Spring 2018 | Hans Goudey '19.5 |
| Summer 2017 | Gigi Miller '18 and Maya Reich '19 |
| Summer 2016 | Lily Taub '17 and Shannon Ovitt '17 |
| Summer 2015 | Julian Billings '16 |
| Summer 2014 | Dana Silver '16 |

STUDENT THESES

Nick Jaczko '19, Improving Sensitive Data Security with Software Visualization and Static Data Tainting
 Dana Silver '16, Middguard : Collaborative and Extensible Visual Analytics
 Aaron Kano-Bower '15, A Tool for Easier Part of Speech Tagging of Corpora
 Teddy Knox '15, Computational Aesthetic Evaluation Using Convolutional Neural Networks
 Katie Manduca '14.5, Tying the Knot: Computer Generation of Celtic Knotwork
 Jeremy Ho '14, Characterizing an Epidemic Spread Through Microblog Data: An Implementation Based Exploration of Geospatial Visual Analytics
 Poomirat Nawarat '14, Room Management Web Site Development
 Andreea Bancila '13 [Mount Holyoke College], Gesture Elicitation for Image Editing
 Alexander Baker '05 [Knox College], Refining the Search: Improving Mental Model for Complex Queries
 Andrew Bazan '3 [Knox College], An Exploration of Non-Photorealistic Rendering Techniques Using Virtual Scene Painter
 Sean Underwood '03 [Knox College], Deducing Relative Coordinates of Points in a Scene From Low-Resolution Images

INDEPENDENT STUDIES

| | | |
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| Spring 2017 | Thomas Bean | App development project |
| Winter 2017 | Connor Levesque | Game development project |
| Fall 2016 | Davin Chia | React examples for CS312 |
| Spring 2016 | Davin Chia, Brandon Gell, Shrif Nada | App development project |
| Winter 2016 | Dana Silver | Middguard project |
| Fall 2015 | Jamie Hand | Information Visualization crash course |
| Spring 2015 | Nathan Kowalski | Information Visualization project |
| Winter 2015 | Benjamin Bogin | Information Visualization project |

