Adam N. Goodkind

Contact Information

Northwestern University
Department of Communications
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Research Interests

Combining information theory in linguistics with statistical modeling and data visualization, to better understand Human-Computer Interaction (HCI). Specifically, by modeling patterns in language production, especially during online conversations, we can better predict the trajectory of collaboration and communication.

Education

PhD, Northwestern University

Media, Technology & Society Program 2019–Present
PIs: Darren Gergle (CollabLab), Anne Marie Piper (Inclusive Technology Lab)

Linguistics Department 2016–2019
PI: Klinton Bicknell (Language & Computation Lab)

Honors:
Data Science Fellowship
Cognitive Science Specialist

M.A., CUNY Graduate Center **2016**
Computational Linguistics
M.A. Thesis: Utilizing Linguistic Context To Improve Identification in Typed Text
Thesis Advisors: Prof. Andrew Rosenberg and Prof. Martin Chodorow

B.A., Columbia University **2007**
Religion (Study of Science & Religion)

Research Experience

Research Assistant, CollabLab, Evanston, IL, USA **2019–Present**
PI: Darren Gergle
Investigating the linguistic markers of collaboration, including semantic similarity and sentiment analysis. Utilizing latent linguistic structure to label significant conversational features.

Research Assistant, LangComp Lab, Evanston, IL, USA **2017–2019**
PI: Klinton Bicknell
Researching autism diagnoses using linguistic markers, such as semantic similarity (word vectors) and pragmatic deficiencies. Also researching how linguistic predictability affects sentence processing via eye-tracking.

Research Assistant, CUNY Speech Lab, New York, NY, USA **2012–2016**
PI: Andrew Rosenberg

Research Assistant, Columbia NLP Group, New York, NY, USA **2006–2007**
PI: Rebecca Passonneau

Honors and Awards

Best Paper Award, Cognitive Modeling & Computational Linguistics (CMCL) **2018**
Developmental Sciences Cluster Fellowship - Finalist, Northwestern University **2018**
Data Science Fellowship, Northwestern University **2016–2017**
USS Donald and Mary Ellen Passantino Scholarship, CUNY Graduate Center **2015**
Google Lime Connect Scholarship-Finalist **2014**
Thomas W. Smith Academic Fellowship, CUNY Graduate Center **2013–2014**
National Science Foundation, Undergraduate Research Grant, Columbia University **2007**
Albert A. List Academic Fellowship **2003–2007**
King's Crown Award for Outstanding Leadership, Columbia University **2006**

Publications

2018 **Goodkind, A.**, Lee, M., Martin, G. E., Losh, M., & Bicknell, K. Detecting language impairments in autism: A computational analysis of semi-structured conversations with vector semantics. In *Proceedings of the Inaugural Meeting of the Society for Computation in Linguistics*. Salt Lake City, UT: Linguistic Society of America. [paper] [slides]

Goodkind, A. & Bicknell, K. Predictive power of word surprisal for reading times is a linear function of language model quality. In *Proceedings of the 8th Workshop on Cognitive Modeling and Computational Linguistics (CMCL 2018)*. Salt Lake City, UT: Linguistic Society of America. [paper] [slides]

2016 **Goodkind, A.**, Brizan D.G. & Rosenberg, A. *Utilizing Overt and Latent Linguistic Structure to Improve Keystroke-Based Authentication.* Image and Vision Computing: Best of Biometrics Special Issue.

2015 **Goodkind, A.**, Brizan D.G. & Rosenberg, A. *Improvements to Keystroke-Based Authentication By Adding Linguistic Context.* 7th IEEE Conference on Biometrics: Theory, Applications and Systems (BTAS 2015). (Slides)

Goodkind, A. & Rosenberg, A. *Muddying The Multiword Expression Waters: How Cognitive Demand Affects Multiword Expression Production. 11th Workshop on Multiword Expressions at NAACL-HLT 2015.* (Slides)

Brizan, D. G., **Goodkind, A.**, Koch, P., Balagani, K., Phoha, V. V., & Rosenberg, A. *Utilizing Linguistically-Enhanced Keystroke Dynamics to Predict Typist Cognition and Demographics. International Journal of Human-Computer Studies, October 2015, vol. 84, 57-68*.

2014 Locklear, H., Govindarajan, S., Sitova, Z., **Goodkind, A.**, Brizan, D., Rosenberg, A., Phoha, V., Gasti, P., & Balagani, K. *Continuous Authentication with Cognition-centric Text Production and Revision Features. Biometrics (IJCB), 2014 IEEE International Joint Conference*.

2013 Serwadda, A.,Balagani, K., Wang, Z., Koch, P., Govindarajan, S., Pokala, R., **Goodkind, A.**, Brizan, D.G., Rosenberg, A., & Phoha, V. *Scan-based Evaluation of Continuous Keystroke Authentication Systems. IT Professional, 15(4), 20-23*.

2008 **Goodkind, A.** *Tracking the Emergence of Narrative Competence in Story Retelling. Quebec Student Journal of Linguistics, Vol. 3*.

2007 Passonneau, R. J., **Goodkind, A.**, & Levy, E. T. *Annotation of Children's Oral Narrations: Modeling Emergent Narrative Skills for Computational Applications. Florida Artificial Intelligence Research Society (FLAIRS), 253-258*.

2006 Passonneau, R., McKeown, K., Sigelman, S., & **Goodkind, A.**. *Applying the Pyramid Method in the 2006 Document Understanding Conference. Proceedings of the 2006 Workshop of the Document Understanding Conference (DUC).*

Presentations

2018 Lee, M.A., Martin, G.E., **Goodkind, A.**, Bicknell, K., Maltman, N., Bush, L., Losh, M. *A Multi-Method Approach to Characterizing Pragmatic Language Development in Individuals with FXS.* Paper presented at the International Fragile X Conference, Cincinnati, OH, July, 2018

Goodkind, A.. *Complex Data Visualization: Visualizing language production dynamics via keystroke analysis.* Presentation at Inaugural Data Science Research Day, Northwestern University Institute on Complex Systems, 25 June 2018. (Slides)

Goodkind, A.. *Demo of TypeShift software system for tracking keystroke dynamics* at Individual Differences Workshop, Northwestern University, 30 May 2018. (Code)

Lee, M.A., Martin, G.E., **Goodkind, A.**, Bicknell, K., Maltman, N., Bush, L., Losh, M. *A longitudinal, multi-method analysis of pragmatic language in ASD and related developmental disabilities.* Poster presented at the International Society for Autism Research, May, 2018, Rotterdam, Netherlands

Goodkind, A. & Bicknell, K.. *Low-level language statistics affect reading times independently of surprisal.* Poster presentation at the 31st annual CUNY Conference on Human Sentence Processing, UC Davis, Davis, California, 15–17 March 2018.

2015 Goldman, N. & **Goodkind, A.**. *Worth 1,😎😊😇 Words: The Linguistics of Emoji and Emoji of Linguistics.* SQUID X: 10th Annual Conference Showcasing Quirky and Original Ideas in Development. New York, NY April 24, 2015. (Slides)

2014 **Goodkind, A.**. *Detecting Multi-word Expressions Through Typing Patterns. 15th Texas Linguistics Society Conference, Austin ,TX, October 24-26, 2014* (Slides)

Goodkind, A.. *Detecting Multi-word Expressions in Computer Keyboard Produced Text. CUNY Research Day*, New York, NY

Teaching Experience

Teaching Assistant
Northwestern University
- Linguistics 220: Language & Society (Prof. Annette D'Onofrio), 2018
  - Guest lecture on quantitative data analysis
- Cognitive Science 210: Language & the Brain (Profs. Matt Goldrick & Mark Beeman), 2019
- Linguistics 221: Language & Prejudice (Prof. Erin Leddon), 2019

Non-Academic Employment

Language Engineering Intern, Transcendent Endeavors, NY, NY, USA **Summer 2016**
Software Developer in Test Intern, Microsoft, Redmond, WA, USA **Summer 2013**
Operations Analyst, Goldman Sachs, USA **2008–2011**

Departmental Service

Co-organizer, Northwestern Text Analytics Working Group **2018–Present**
Founder, Northwestern NLP Group **2017–2018**
Founder, Linguistics Deep Learning Reading Group **2017–Present**
Web & Social Media Coordinator, Linguistics **2017–Present**
Colloquium Reception Committee, Linguistics **2016–2017**

Professional Activities

North American Computational Linguistics Olympiad (NACLO), Volunteer, 2019
Diversity & Inclusivity Committee, NAACL 2019, Committee Member
DevSci Cluster, Northwestern University, Member
Institute of Electrical and Electronics Engineers (IEEE), Member
Linguistic Society of America (LSA), Member
Association for Computational Linguistics (ACL), Member
Financial Industry Regulatory Authority (FINRA), Member

Languages

Computer—Java, Python, R (ggplot2, plotly, lme4), C++, VBA, C#, LaTeX, MATLAB/Octave
Human—American Sign Language (ASL), Hebrew, Latin

References

Klinton Bicknell, Research Scientist, Duolingo
(Original PhD advisor at Northwestern)
email: klinton@duolingo.com

Andrew Rosenberg, Research Scientist, Google
(MA advisor at CUNY Graduate Center)
email: rosenberg@google.com