Jesse Vig

Salesforce Research
575 High St.
Palo Alto, CA 94043

jvig@salesforce.com
https://jessevig.com

EDUCATION

University of Minnesota, Minneapolis, MN
Ph.D. in Computer Science, GPA: 4.0/4.0

University of Minnesota, Minneapolis, MN
M.S. in Computer Science, GPA: 4.0/4.0

Oberlin College, Oberlin, OH
B.A. in Mathematics, Phi Beta Kappa, GPA: 3.9/4.0,

Wesleyan University, Middletown, CT
Undergraduate studies, Academic Average: 92.1%

RESEARCH INTERESTS

Natural Language Processing, Explainable AI, Causal Inference, Visualization

EXPERIENCE

Research Scientist, Salesforce Research, Palo Alto (2020-present)

- NLP model robustness
- Interpretation and development of protein language models

Research Scientist, Palo Alto Research Center, Palo Alto, CA (2011–2020)

- Interpretation of neural NLP models
- Model visualization
- Dialog systems and conversation analysis
- Behavior change platform

Research Assistant, GroupLens Research, University of Minnesota (2008–2011)

- Recommender system explanation
- Recommender system controllability
- Tagging Systems
- Intelligent User Interfaces

OTHER PROJECTS

BertViz, open-source tool for visualizing attention in the Transformer model, including two novel visualization interfaces. Has received 2500 stars on GitHub.

100 Years Ago, Google Assistant action (retired), 2017. Designed and implemented award-winning educational app for Google Assistant that teaches users about historical events through an interactive radio show in which users can “call in” and speak to a historical figure.

GeoGreeting.com, website, 2006. Designed and created website for sending greetings constructed from satellite imagery. Has received over 5M page views.

HONORS AND AWARDS

First-place winner, Actions on Google Developer Challenge, Google, 2017. Independently designed and implemented “100 Years Ago,” an educational app for Google Assistant that won first place in the Google-sponsored competition. https://bit.ly/2PGwsZQ

Best Paper Award, Intelligent User Interfaces conference, 2009. Received award for “Tagsplanations: Explaining Recommendations Using Tags” by **J. Vig**, S. Sen, J. Riedl.

Best Paper Nomination, Intelligent User Interfaces conference, 2011. Received nomination for “Navigating the Tag Genome,” by **J. Vig**, S. Sen, J. Riedl.

Golden Acorn Award, Palo Alto Research Center, 2017. Awarded for patents with potential for high impact.

Excellence Award, Palo Alto Research Center, 2016. Awarded for work on conversational agents.

Popular Science Magazine Website of the Month, 2007. Designed and implemented GeoGreeting.com, which was featured as Website of the Month in the print and online version of Popular Science Magazine.

SKILLS

Languages: Python (advanced), Java (intermediate), HTML/JavaScript (intermediate), R (basic), C++ (basic), Objective C (basic)

Frameworks/Technologies: PyTorch, SKLearn, NumPy, D3, MySQL, Linux, Git, AWS, Tableau

PUBLICATIONS

J. Vig, A. Madani, L. Varshney, C. Xiong, R. Socher, and N. Rajani. BERTology Meets Biology: Interpreting Attention in Protein Language Models. In: *Proceedings of the 9th International Conference on Learning Representations (ICLR)* 2021 (to appear).

J. Vig*, S. Gehrmann*, Y. Belinkov*, S. Qian, D. Nevo, Y. Singer, and S. Shieber. Investigating Gender Bias in Language Models Using Causal Mediation Analysis. In: *Advances in Neural Information Processing Systems (NeurIPS)*, 2020 **(spotlight)**. *Indicates equal contribution.

J. Vig and Y. Belinkov. Analyzing the Structure of Attention in a Transformer Language Model. In: *Proceedings of the Second BlackboxNLP Workshop on Analyzing and Interpreting Neural Networks for NLP (BlackboxNLP at ACL)*, 2019.

J. Vig. A Multiscale Visualization of Attention in the Transformer Model. In: *Proceedings of the 57th Annual Meeting of the Association for Computational Linguistics: System Demonstrations,* 2019.

J. Vig and K. Ramea. Comparison of Transfer-Learning Approaches for Response Selection in Multi-Turn Conversations. In: *Dialog System Technology Challenges 7 Workshop (AAAI),* 2018.

J. Vig, S. Sen, and J. Riedl. The Tag Genome: Encoding Community Knowledge to Support Novel Interaction. In *ACM Transactions on Interactive Intelligent Systems (ACM TiiS),* 2012.

J. Vig. Intelligent Tagging Systems: Machine Learning for Novel Interaction. *Ph.D thesis,* 2012.

J. Vig, S. Sen, and J. Riedl. Navigating the Tag Genome. In: *Proceedings of the 16th International Conference on Intelligent User Interfaces (IUI)*, 2011. **Best Paper nomination**.

J. Vig, M. Soukup, S. Sen, and J. Riedl. Tag Expression: Tagging with Feeling. In: *Proceedings of the 23rd Annual ACM Symposium on User Interface Software and Technology (UIST), 2010.*

S. Sen, **J. Vig**, and J. Riedl. Tagommenders: Connecting Users to Items through Tags. In: *Proceedings of the 18th International Conference on World Wide Web* (*WWW)*, 2009.

J. Vig, S. Sen, and J. Riedl. Tagsplanations: Explaining Recommendations Using Tags. In: *Proceedings of the 14th International Conference on Intelligent User Interfaces (IUI),* 2009. **Best Paper winner.**.

S. Sen, **J. Vig,** and J. Riedl. Learning to Recognize Valuable Tags. In: *Proceedings of the 14th International Conference on Intelligent User Interfaces (IUI),* 2009.

Patents

J. Vig, H. Arsikere, M. Syzmanski, L. Plurkowski, K. Dent, D. Bobrow, D. Davies, and E. Saund. System for Automatic Extraction of Structure from Spoken Conversation using Lexical and Acoustic features. 2018.

J. Rubin, G. Youngblood, A. Ram, P. Pirolli, **J. Vig**, S. Ahern, and L. Nelson. System and Method for Automatic Objective Reporting via Wearable Sensors. 2015.

A. Ram, G. Youngblood, P. Pirolli, L. Nelson, **J. Vig**, S. Ahern, J. Rubin, C. Pavlopoulou, Method and a System for Providing Hosted Services Based on a Generalized Model of a Health/Wellness Program. 2014.