Jesse N. Dunietz

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Research & Engineering Experience

Elemental Cognition, Westport, CT: *Researcher* *Feb. 2019–present*

- Lead efforts to define desired capabilities for the company's deep natural language understanding technology
- Identify and explore marketable applications for the company's technical approach (with CEO & team)
- Articulate company's vision and approach for investors, researchers, & public via blog posts (5 to date), academic papers (1 written, 1 edited), whitepapers (1), and earned media (e.g., MIT Technology Review op-ed)
  - Led to an investment round, inquiries from researchers & potential clients, & 3 talk/podcast invitations

Carnegie Mellon University, Pittsburgh, PA: *Ph.D. Student (Natural Language Processing)* *June 2011–Jan. 2018*

- Created comprehensive annotation scheme to represent causal relationships expressed in text
- Managed 4 annotators to produce a ~4900-sentence textual corpus exhaustively annotated for causal language
- Published 3 novel automated techniques for extracting causal relations, including a deep neural network
- Analyzed responses of macaque visual cortex to 3D-like stimuli with custom software *(with previous advisor)*

Google, Mountain View, CA: *Software Engineering Intern* *June–Aug. 2011; May–Aug. 2013*

- Developed novel machine learning model for rating entities' centrality within a document
- Explored and implemented techniques for identifying high-quality responses to controversial Internet articles

MIT (Genesis group/Media Lab), Cambridge, MA: *Undergrad. Researcher* *Sep. 2010–May 2011; Oct. 2008–Mar. 2009*

- Incorporated "structure mapping" analogy algorithm into Genesis story-processing system to compare stories
- Implemented "spreading activation" relevance algorithm for ConceptNet commonsense knowledge base

SLAC National Accelerator Laboratory, Menlo Park, CA: *DOE "SULI" Intern* *June–Aug. 2010*

- Built software framework for representing high-energy particle decays, including a description language and visualizer, to save collider physicists days of pre-analysis effort

Scholarly publications: 9 archival (with 109 total citations) + 2 non-archival; see website for details.

Communication & Writing Experience

MIT Communication Lab, Cambridge, MA: *Instructional Designer & Program Coordinator* *Apr. 2018–present*

- Design, revise, and co-deliver suite of 9+ training workshops on best practices in coaching and technical communication for graduate Fellows who coach other STEM students on scientific communication tasks
- Managed data collection for the Communication Lab's research study on the effectiveness of its coaching

Scientific American, SciShow, Popular Mechanics, & others: *Freelance Science Writer* *Aug. 2013–present*

- Write articles and video scripts about comp. sci. & physics (>30 to date, listed at jesseduniet z.contently.com)

Securing America's Future Energy, Washington, DC: *Technology, Energy, and Society Fellow* *Mar.–Nov. 2018*

- Wrote 3 articles + 1 video script on autonomous vehicles for SciAm, SciShow, & others, with SAFE's support

Scientific American, New York, NY: *AAAS Mass Media Fellow* *June–Aug. 2017*

- Reported and wrote 11 in-depth pieces for Scientific American's news website and print "Advances" section

Public & Professional Service

International Center for Advocates Against Discrimination (ICAAD): *Advisor on AI* *Jan. 2020–present*

- Advise on artificial intelligence's impact on human rights, particularly how to map between the needs and concerns of anti-discrimination work and the technical capabilities of modern AI systems

Science Communication Trainers Network: *Member & Volunteer* *Oct. 2019–present*

- Assist with strategic planning for the nascent network, particularly how to define and expand membership

Public Communication for Researchers (PCR), CMU, Pittsburgh, PA: *President* *June 2012–Dec. 2016*

- Founded and developed student group that has trained hundreds of CMU students in public communication

- Co-taught ~18 communication workshops for CMU students, faculty, & alumni, U. of Pittsburgh, & others
- Negotiated with administration to build long-term institutional support for the program

ComSciCon National Conference, Cambridge, MA: *Organizing Committee* *Sep. 2013–June 2015*

- Planned & ran science communication programming for graduate students, incl. finding & inviting speakers

EDUCATION

Carnegie Mellon University (CMU) *Ph.D. in Computer Science, January 2018*
Massachusetts Institute of Technology (MIT) *S.B. in Computer Science, June 2011*
University of Cambridge *1-year exchange program from MIT (2009–2010)*

SKILLS

Software and technology development:

- Experienced software developer; at home in Python, C/C++, Java, JavaScript, HTML/CSS, Bash, & others
- Comfortable analyzing data, selecting statistical models, & implementing them in machine learning toolkits

Communication:

- Strong presenter/speaker, honed via running PCR (see above), research presentations, and teaching
- Adept at sharing complex ideas with diverse audiences (from PCR, other workshops, & science writing)
- Clear, concise writer

Leadership:

- Strong track record of envisioning organizational strategies, navigating institutional structures, building consensus, guiding discussions to next steps, and mediating conflicts