Daniele Grandi

Machine Learning + Design Research

grndnl@gmail.com | Website | LinkedIn | Publications

EDUCATION

University of California, Berkeley   Berkeley, CA

Master of Information and Data Science   Jan 2022 - Dec 2023

Bachelor of Science, Mechanical Engineering   Aug 2011 - May 2015

EXPERIENCE

Autodesk | Principal Research Scientist   San Francisco, CA / Remote | Nov 2024 - present

Researching machine learning applications in data-driven design. Leveraging LLMs, VLMs, and GNNs, to develop the next generation of design tools. Collaborating with MIT, UC Berkeley, and CMU on developing new design datasets and benchmarks for engineering design tasks.

Autodesk | Sr. Research Engineer   San Francisco, CA / Remote | Mar 2019 - Nov 2024

Spearheaded research at the intersection of mechanical engineering and machine learning. Leveraging knowledge representation and reasoning, ontologies, knowledge graphs, and semantic technologies to create the next generation of design tools. Researching methods to automatically learn design best practices from CAD databases, in collaboration with UC Berkeley, OSU, and MIT.

Autodesk | Design Engineer   San Francisco, CA / London, UK | Sep 2015 - Mar 2019

Collaborated on the development of a goal-driven generative design platform. Leveraged my experience with design for traditional and additive manufacturing to develop technology demonstrators, while closing the feedback loop from the end-user back to the development team.

Project BAM | Additive Manufacturing Engineer   San Francisco, CA | May 2015 – Mar 2016

Shaped the initial focus of an additive manufacturing startup by developing strategies for streamlining the entire AM process from sketches to finished parts. Planned the layout of the AM facility and machine shop. Guided customers through the redesign of parts with additive manufacturing value-added.

SKILLS

Programming	Python, C++, MATLAB, Visual Basic
Data Science	Pytorch, Tensorflow, Keras, Scikit-learn, R, SQL, Neo4j, GDL, GNN, NLP
CAD	Autodesk Expert Elite, SolidWorks Certified Professional, NX, Creo (Pro/E)
Simulation	NASTRAN, Siemens Femap, Autodesk Simulation Mechanical, CFD
Optimization	Generative Design/TopOpt, ADSK Within, Altair Optistruct, Solidthinking Inspire
Manufacturing	Additive Manufacturing, machine shop expertise

PROJECTS

ARCS | AI-assisted Knowledge Graph Design Link

Supporting design automation by leveraging graph neural networks to suggest appropriate materials for parts in assemblies. Collaboration with NASA JPL, NIST, and CSUN.

Autodesk, Project Dreamcatcher | NASA JPL Lander Link

Applied generative design software research prototype to the design and manufacture of a lander structure.

RELEVANT PUBLICATIONS Link

Grandi, D., Jain, Y. P., Groom, A., Cramer, B., & McComb, C. (2025). **Evaluating large language models for material selection.** *Journal of Computing and Information Science in Engineering*, *25*(2), 021004.

Ma, K., Grandi, D., McComb, C., & Goucher-Lambert, K. (2023, August). **Conceptual design generation using large language models.** In *International Design Engineering Technical Conferences and Computers and Information in Engineering Conference* (Vol. 87349, p. V006T06A021). American Society of Mechanical Engineers.

Doris, A. C., Grandi, D., Tomich, R., Alam, M. F., Ataei, M., Cheong, H., & Ahmed, F. (2025). **Designqa: A multimodal benchmark for evaluating large language models' understanding of engineering documentation.** *Journal of Computing and Information Science in Engineering*, *25*(2), 021009.

Ataei, M., Cheong, H., Grandi, D., Wang, Y., Morris, N., & Tessier, A. (2024). **Elicitron: An LLM agent-based simulation framework for design requirements elicitation.** *arXiv preprint arXiv:2404.16045.*

Bian, S., Grandi, Willis, K. (2024). **HG-CAD: hierarchical graph learning for material prediction and recommendation in computer-aided design.** *Journal of Computing and Information Science in Engineering*, *24*(1), 011007.