

Director of AI Research

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We have an opening for an executive role in the Autodesk AI Lab!



The Team

Reporting into the head of AI & Robotics at Autodesk, you are part of a rapidly growing team of over 20 researchers and engineers heading up Autodesk's work in AI, Computational Science and Robotics. The teams are based in San Francisco, Toronto and the UK.

The Opportunity

You lead our AI Research team in Toronto, working on the future technologies our customers will use to create a better world!

Our AI Labs focus on research in: **deep learning, control systems, simulation and knowledge representation** applied to diverse areas such as: **geometry, robotics, advanced sensing, design exploration and sustainable engineering or construction practices**. The labs also host product engineers resulting in early productization of our research, so you can see your work in action.

A sampling of AI Lab projects:

- BrickBot – <https://www.fastcompany.com/90204615/autodesks-lego-model-building-robot-is-the-future-of-manufacturing>
- Auto Sketching and Vectorization – <https://canvasdrawer.autodeskresearch.com/>
- Topology Optimization for Specific Manufacturing Processes – <https://www.autodesk.com/customer-stories/general-motors-generative-design>

Job Requirements

To be a successful candidate you should have the following:

- An MS or PhD in a field related to AI and Machine Learning such as: Computer Science, Mathematics, Statistics or Physics
- Significant doctoral or post-doctoral research experience or 5 or greater years of work experience in AI research projects
- Experience leading teams, running projects, and mentoring staff
- Good communication skills and an awareness of how to communicate data and results effectively

- Comfortable working in newly forming ambiguous areas where learning and adaptability are key skills
- Experience working with large data-lakes/data-sets
- Solid background in statistical methods for Machine Learning. e.g. Bayesian methods, HMMs, Graphical Models, dimensional reduction, clustering, classification, regression techniques, etc.
- Strong familiarity with Deep Learning techniques. e.g. Network architectures; regularization techniques; learning techniques; loss-functions; optimization strategies; etc.

Preferred Qualifications & Experience

Applied experience in one more of the below areas can make your application stand out:

- Reinforcement Learning and other areas of Control Theory
- Distributed Systems and High-Performance Computing methods
- Geometric Shape Analysis
- Advanced simulation methods such as: FEA, CFD, Shape and Design Optimization, Photo-Realistic Rendering, etc.
- Knowledge Representation (semantic models, graph databases, etc.)
- Familiarity with modern ML frameworks and tools. e.g. TensorFlow, Caffe, MxNet, Spark, Ray, Chainer, etc.
- Strong coding abilities in: Python and C/C++
- Experience training and debugging networks
- Background in the design, manufacturing or construction industries

About the AI Lab

Autodesk is the ideal environment for applying advanced Machine Learning techniques to: learn from an incredibly rich world of data; predict and synthesize solutions typically beyond human abilities; and create new levels of automation in how things are physically built. Given the broad variety of AI problems faced by Autodesk and our clients, we created a centralized facility to concentrate the research and engineering work behind these solutions ... **The Autodesk AI Lab**. The Lab brings together AI Researchers, Software Engineers and specialists in various problem areas to create novel AI solutions in all the areas mentioned above and more. They work closely with experts in: geometric modeling, simulation systems, robotics, knowledge representation, sensing and computer vision, industrial manufacturing and construction techniques.

The AI Lab works with both product teams and customers to realize these AI solutions, getting access to massive data streams and seeing our AI models come to life in the field!

Responsibilities

As a **Director of AI Research** in the **Autodesk AI Lab** you will have a range of responsibilities including:

- Strategic thought leadership with other research executives
- Guiding and leading teams of researchers working on the above-mentioned AI problems
- Connecting with academics and institutions to build relationships and collaborations
- Planning and designing research projects: specifying the problem, guiding the project scope and methods for tracking progress
- Mentoring researchers and engineers
- Exploring and developing new Machine Learning models and AI techniques
- Constantly reviewing relevant Machine Learning literature to identify emerging methods or technologies and current best practices
- Exploring new data sources and discovering techniques for best leveraging data
- Publishing and talking at conferences
- Working closely with product engineering teams to design, develop and incorporate AI solutions into new products
- Connecting with Autodesk customers (with whom we do collaborative research)
- Publishing and speaking at conferences

About Autodesk

The work we do at Autodesk touches nearly every person on the planet. By building tools for designing buildings, developing machines and even the latest movies, we influence and empower some of the most creative people in the world to solve problems that matter. We love that, often, these are solutions to some of the most pressing issues the world faces: housing more people, reducing impact on our environment, and dramatically reducing illness and death in developing parts of the world.

In serving these customers, we tap into and find insights in these rich streams of data. Such as real-time sensor data from cars or 3D scans of buildings as they are being constructed or restored. In other cases, it is about learning the language of 3D modeling from watching designers create and then training intelligent design tools to make design more accessible. Or, it's about automating and refining how things are physically made in the world, through advanced robotics, controlling 3D printers or sophisticated milling machines.