

Maciej Pacula

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INTRODUCTION A hands-on leader with a passion for Machine Learning & Data Science, committed to engineering robust data-driven software systems that support growth and innovation.

EDUCATION **Massachusetts Institute of Technology**, Cambridge, MA
Master of Engineering, Computer Science, June 2011

- Thesis: “Evolutionary Algorithms for Compiler-Enabled Program Autotuning”
- Relevant coursework: Machine Learning, Advanced Natural Language Processing, Probability and Computation, Large-Scale Symbolic Systems

Bachelor of Science, Computer Science, June 2010

- Relevant coursework: Artificial Intelligence, Probabilistic Systems Analysis, Autonomous Robotics, Discrete Mathematics, Biology, Linear Algebra, Compiler Design and Implementation, Software Engineering, Software Performance Engineering

PROFESSIONAL EXPERIENCE **Massachusetts General Hospital**, Boston, MA **June 2015 - present**
Team Lead, Computational Pathology

- Leading a team of seven software engineers, bioinformaticians and data scientists building tools for personalized cancer care. Technologies: Python, flask, scikit-learn, keras, TensorFlow, numpy, pandas, docker, kubernetes, AWS, Azure, git
- Kickstarting and leading Data Science within the department; building databases, tools and systems that combine clinical, molecular and imaging data in order to enable discovery and predictive modeling
- Supporting Digital Pathology efforts, including whole slide image analysis & deep learning
- Leading the effort to migrate MGH’s clinical genomics analysis to the Microsoft Azure cloud, including feasibility assessment, architecture design, patient privacy & InfoSec compliance, as well as cost analysis

SynapDx, Lexington, MA **March 2014 - May 2015**
Principal Data Scientist

- Lead Data Scientist & ML developer on a Python+AWS stack
- Applied Machine Learning to build a predictive model of autism from genetic and molecular data; regularly presented work to senior management and the executive team

Raytheon BBN Technologies, Cambridge, MA **March 2012 - March 2014**
Staff Scientist

- Technology lead & developer on the DARPA DCAPS program. Coordinated research, engineering, data annotation and implementation
- Developed novel algorithms to automatically detect and label psychological distress signals in multimodal communications using Natural Language Processing and Machine Learning

DataXu, Boston, MA **June 2011 - March 2012**
Software Engineer

- Contributed to the development of the infrastructure for Machine Learning and advertising optimization on a Java+Hadoop stack

SKILLS

- 3+ years management experience in both engineering and data science
- Excellent communication skills with proven ability to communicate complex technical topics to C-level management and non-technical staff
- Machine Learning & NLP expertise
- Capable software engineer proficient in Python (6+ years) and Java, with experience in C/C++, C#, Haskell, Matlab and Lisp
- Start-up and cloud experience

PATENTS

U. Geigenmuller, D. Damian, **M. Pacula**, M.A. DePristo. *Methods and Systems for Determining Autism Spectrum Disorder Risk*. United States Patent 9,176,113. Granted November 3, 2015.

SELECTED PUBLICATIONS

Zomnir, M. G., Lipkin, L., **Pacula, M.**, Dominguez Meneses, E., MacLeay, A., Duraisamy, S., ... & Nardi, V. (2018). *Artificial Intelligence Approach for Variant Reporting*. JCO Clinical Cancer Informatics, 2, 1-13.

Pacula, M., Meltzer, T., Crystal, M., Srivastava, A., & Marx, B. (2014). *Automatic detection of psychological distress indicators and severity assessment in crisis hotline conversations*. In ICASSP (pp. 4863-4867).

Ansel, J., **Pacula, M.**, Wong, Y. L., Chan, C., Olszewski, M., O'Reilly, U. M., & Amarasinghe, S. (2012). *Siblingrivalry: online autotuning through local competitions*. In Proceedings of the 2012 international conference on Compilers, architectures and synthesis for embedded systems (pp. 91-100). ACM.

Pacula, M., Ansel, J., Amarasinghe, S., & O'Reilly, U. M. (2012). *Hyperparameter tuning in bandit-based adaptive operator selection*. In European Conference on the Applications of Evolutionary Computation (pp. 73-82). Springer.

Pacula, M. (2011). Evolutionary algorithms for compiler-enabled program autotuning (Master's thesis, Massachusetts Institute of Technology).