Dr. rer. nat. Péter Molnár

Atlanta, Georgia, USA
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+1.404.271.2872

Data Scientist

Self-organized Resource Management

Image Processing, Computer Vision

Unstructured Social/Multi Media Data

Sensor Fusion, Data Processing

Robotics, Artificial Intelligence, Machine Learning

System, Network, Database Administration

Visual Story Telling

Social Scientist

Modeling and Simulation of Human Behavior

Predictive Policing

Public Safety Surveillance

Social Networks Analysis

Retail Space Customer Tracking

Crowd Behavior Management

Behavioral Experiments and Simulation

Professor

University Engagement and Leadership

Instructor, Mentor, Research Advisor

International Presence in Publications

Federal and State Funding

Programs Development, Implementation

Pro Bono, Community Engagement

Entrepreneur

Senior Data Scientist, Nomi Corporation (formerly BrickStream Corporation) .... 2014 – present
Developing customer localization and tracking system in brick-and-mortar retail environments. Implementing prototype for model validation and demonstration.

Academic Professional, Robinson College of Business, Georgia State University .... 2015 – present
Working with students of the Master of Analytics program on short-term, proof-of-concept projects with industry partners. Developing workshops and courses for academic and professional education programs.

Chief Data Scientist, Atlanta Police Foundation .... 2013 – 2015
Leading effort of exploring and evaluating novel intelligence-led policing solutions. Collaborating with APD officers and vendors to conduct extensive field trials, explore applications of technologies in the public safety sector, and develop reporting instruments for adopted technologies.

Associate Professor of Computer and Information Science, Clark Atlanta University .... 2000 – 2014
Research in self-organized, intelligent agent systems funded by federal and state agencies:
Development of Clutter Complexity Measures in Hyper-spectral Infrared Images .... Army Research Laboratory
Self-organized Management of Unattended Ground Sensors .... Army Research Lab, Sanders/Lockheed-Martin
Micro-sensor Management and Cooperative Sensor Fusion .... Army Research Laboratory, BAE Systems
Self-organized Control of Manned and Unmanned Vehicles in Space Colonies .... NASA Inst. for Adv. Concepts
Coalition Formation in Mobile Autonomous Robot Teams ....Army Research Office
Bridging Human Vision and Computer Vision .... NASA
Traffic Flow Modal Verification Study .... Georgia Department of Transportation
Teaching courses in Machine Learning, AI, Robotics, HPC, and Web development.
Chair of Taskforce on Instructional Technology and Alternative Delivery, Chair of School of Arts and Science Curriculum Committee, Chair of Student Cluster Competition, SC12 Salt Lake City/UT 2012

Co-Founder/Chief Technology Officer, Synovia Inc. .... 2001 – 2003
Start-up to develop self-organized, wireless mesh network technology. Received initial funding through Faculty Research Commercialization Program, ATDC.

Education

Dr. rer. nat., Theoretical Physics, University of Stuttgart, Germany 1995
Dissertation topic: *Modeling and Simulation of Pedestrian Crowds*
Dipl. Physiker (comparable to M.S. Physics), Georgia Augusta University, Göttingen, Germany 1992
Thesis topic: *Quantum Dynamics Simulation of the Photodissociation Process of HCN*

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Technical Experience, Programming Languages, Frameworks, and Tools

Multi-agent simulations .... C++, Julia, Java, NetLogo

Prototyping .... Processing, NetLogo

Number crunching .... Julia, C++, CUDA, OpenMP, MPI, Graphlab, OpenCV, Spark, Python, R, Fortran

Machine Learning .... Scikit-Learn, Spark ML, Weka, Python, Julia

Data acquisition & preprocessing .... bash, curl, grep, sed, awk, Python, PHP, Perl, PowerShell

Natural Language Processing, Text Analytics .... Prolog, WordNet, NLTK

Computer Vision, Image Processing .... OpenCV, Matlab

Visualization (screen) ....gnuplot, octave, R, OpenGL, Visit, D3JS, NVD3, Google Maps API

Visualization (print) .... gnuplot, octave, R, PostScript, GraphVis, LaTeX

Data store .... SQLs (MySQL, PostgreSQL, TS-SQL), MongoDB, Riak, HDFS

Web services .... PHP, Python, Ruby on Rails, Perl, Prolog, XML/XSLT, Apache, C#, ASP.NET

Web applications .... HTML/CSS, JavaScript, jQuery, D3JS, Bootstrap

Graphical User Interfaces .... HTML5/JS, jQuery, D3JS, Java, X11/Motive, Processing

Selected Publications

Social force model for pedestrian dynamics, D Helbing, P Molnár, Physical review E 51 (5), 4282, 1995

Self-organizing pedestrian movement
D Helbing, P Molnár, IJ Farkas, K Bolay, Environment and planning B 28 (3), 361-384, 2001

Simulation of pedestrian crowds in normal and evacuation situations
D Helbing, IJ Farkas, P Molnár, T Vicsek, Pedestrian and evacuation dynamics 21 (2), 21-58, 2002

Modelling the evolution of human trail systems, D Helbing, J Keltsch, P Molnár, Nature 388 (6637), 47-50, 1997

Maximum likelihood methods for bearings-only target localization
LM Kaplan, Q Le, P Molnár, Acoustics, Speech, and Signal Processing, Proceedings ICASSP'01, 2001

Control of distributed autonomous robotic systems using principles of pattern formation in nature and pedestrian behavior
P Molnár, J Starke, Systems, Man, and Cybernetics, Part B: Cybernetics, IEEE Transactions on, 31, 2001

Bearings-only target localization for an acoustical unattended ground sensor network
LM Kaplan, P Molnár, Q Le, Aerospace/Defense Sensing, Simulation, and Controls, 40-51, 2001

Adaptive Sampling via Histogram Equalization using an Active Walker Model
OO Fadiran, P Molnár, LM Kaplan, ICIS-COMSAR Conference, IEEE, 2006

A statistical approach to quantifying clutter in hyperspectral infrared images
OO Fadiran, P Molnár, LM Kaplan, Aerospace Conference, IEEE, 10 pp., 2006

Complete list at **http://www.researchgate.net/profile/Peter_Molnar3/publications** .... 3,000+ citations