

Terran Melconian

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EXPERIENCE AND EDUCATION

2008-present: **Google, Cambridge, MA**

Technical Lead for a team of five on the Social Image Search product, which shows personally relevant image results based on content ownership and social connections. Responsible for architecture, project planning, and team coordination. Engineering tasks included data processing pipeline in map-reduce framework, extraction and analysis of user and data statistics, and development of Javascript and HTML on top of Java servlets.

2006-2008: **Air Network Simulation and Analysis, Revere, MA**

President and Simulation Architect. Designed next generation air transportation simulation architecture on an inherently stochastic framework with flexible runtime fidelity scoping using object-oriented approach in C++. Wrote proposals for both government and industry projects and met with prospects and customers at major airlines and decision support tool vendors.

2004-2007: **Genasun, Boston, MA**

Co-founder and Firmware Engineer. Designed digital electronics and wrote microcontroller firmware for high efficiency solar controllers and lithium ion batteries. Worked closely with analog engineering and manufacturing. Developed several systems running on 8-bit microcontrollers; varying products contained between one and five micros with 2k to 128k of code space. Complete life cycle including budgeting, design, development, testing, production, troubleshooting, and customer support. Rapid development of desktop applications to support hardware. Part time.

2001-2006: **International Center for Air Transportation, MIT**

Research Engineer. Technical lead for the MIT Extensible Air Network Simulation (MEANS) development team of five people on average. Designed and wrote a fast-time event-based C++ simulation of US and international airspace, used to assess delays and evaluate new scheduling and operational concepts. Developed visualizations and statistical analyses of simulation results.

2000-2001: **Massachusetts Institute of Technology (MIT), Cambridge, MA**

S.M. in Aeronautics/Astronautics awarded September 2001. Graduate Research Assistant in the International Center for Air Transportation. Investigated the effects of airline hub congestion on optimal route selection through simulation of operational delays and costs. Studies included economics, game theory, and operations research in addition to aviation.

Summer 2000: **Haven Colocation, London, UK and Sealand**

Buildout of market-leading secure colocation facilities on the micronation Principality of Sealand.

- 1998-1999: **Gas Turbine Lab, MIT**
Undergraduate Research in the materials and structures group of the Microengine project, developing a micro-scale (1 cm) gas turbine engine for use in power generation and propulsion. Developed fixtures and procedures to perform mechanical and electrical testing of the packaged engine at room and elevated temperature. Wrote tools to assist with finite-element modelling of rotor and aforementioned complete package.
- 1996-1999: **Massachusetts Institute of Technology (MIT), Cambridge, MA**
S.B. in Aeronautics/Astronautics awarded February 2000. Studies in aerodynamics, materials and structures, and control systems. Grade point average 4.9/5.0.

SKILLS

- Software Architecture Experience at several scales including distributed data manipulation, high performance parallel numerical simulation, rapid prototyping, and embedded systems on limited devices. Several projects successfully extended beyond original requirements without needing redesign.
- Programming Languages *Expert:* C, Perl, C++, Atmel AVR Assembly
Proficient: Python, Bourne Again Shell
Familiar: Java, Javascript, Fortran 9x, Smalltalk, awk
- Project Management Led small to medium teams, including inter-organization projects. Kept software projects on schedule and met deliverables to industry customers and governmental funding agencies. Budgeted and scheduled proposed projects.
- Computer Technologies Linux (Debian, Red Hat, Ubuntu), FreeBSD, SQL, CVS, Subversion, RCS, Perforce, threads, parallel computing, XML RPC, GNU compiler toolchain, Matlab
- Electronics Experience with AVR 8-bit RISC microcontrollers, Cypress and Xilinx CPLDs, Verilog, VHDL. Personal facilities include analog and digital oscilloscopes, signal generators, hot air SMT rework station, spectrum analyzer. Amateur radio operator KB1DBT.
- Miscellaneous: Machining experience. Composite fabrication. 35mm and large format photography. Black belt in Shao-Lin Kempo Karate.

SELECTED PUBLICATIONS

- J.P. Clarke, T. Melconian, E. Bly, F. Rabbani. 2007. MEANS — The MIT Extensible Air Network Simulation. *SIMULATION: Transactions of The Society for Modeling and Simulation International*. 83 (5): 385-399.
- T. Melconian. 2001. Effects of increased nonstop routings on airline cost and profit. Master's thesis, Massachusetts Institute of Technology, Cambridge.