Terran Melconian

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EXPERIENCE AND EDUCATION

2006-2008: **Air Network Simulation and Analysis, Revere, MA**
President and Lead 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. In charge of 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 hardare. 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. Obtained over $500k in funding from government and industry.

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.
1993-1999:	**SOL-3 Resources Inc, Reading, MA** Junior Engineer. Responsible for the company's computer operations, including installation, training, and programming. Assorted tasks in design and fabrication of water-analogue test rigs for combustors and injectors. Part time.

SKILLS

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.
Software Architecture	Experience at several scales including 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, C++, Atmel AVR Assembly *Proficient*: Perl, Python, Bourne Again Shell *Familiar*: Fortran 90/95, 80x86 Assembly, Smalltalk, awk
Computer Technologies	Linux (Debian, Red Hat), FreeBSD, SQL, CVS, Subversion, RCS, threads, high performance 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, power supplies, meters, soldering irons, hot air rework station. Amateur radio operator KB1DBT.
Miscellaneous:	Black belt in Shao-Lin Kempo Karate. Machining experience. Composite fabrication. 35mm and large format photography.

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.