

Isaac Dimitrovsky, Ph.D.

Software Engineer

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Summary:

Creative software engineer with long-term record of quickly developing reliable high-performance applications for clients ranging from hedge funds to major museums. Expert at algorithm and heuristic development and optimization. Working knowledge of financial security analysis, machine learning, and computational chemistry / biochemistry. Accomplished writer and presenter, skilled at explaining technical concepts clearly. Adept at learning new technologies.

Language/Tech:

Python, JavaScript, C, Java, LISP, assembler, fast.ai, PyTorch, CUDA, Linux, Windows, SQL, NoSQL, AWS

Recent experience:

2020 RA2 DREAM Challenge – used deep learning to evaluate joint damage in rheumatoid arthritis X-ray images.

- Ranked top score overall in the competition – see the [final leaderboard](#) and [writeup](#).

2011-2020 Developed financial software for NY-based hedge fund.

- Used Python, sklearn, financial data from Capital IQ and other sources, NLP, and Excel to develop software to help find and analyze investments for a NY-based hedge fund with \$2B in assets under management.

2018-2019 Created financial website using machine learning to predict stock buys of major investors.

- Used Python, scipy, AWS, customized ML algorithms, and data scraped from the SEC to create GuruPredictor.com, which uses ML to predict future stock buys of major investors based on their current holdings.

2018-2020 Machine Learning meetup organizer / speaker

- Organized a weekly [ML meetup](#) at the Fat Cat Fab Lab, a maker space in the West Village, NYC. Taught Fastai part 1 and 2; also spoke on various ML topics including [how to screw up statistics](#) and [optimizing the unexpected](#).

2016-2018 Computational chemistry study and research

- Used Python and CosmoTherm (computational chemistry software) to develop a heuristic based on simulated annealing to optimize solvent blends; [presented it](#) at COSMO-RS Symposium 2018.

2012-2015 3D printing / design software

- Used Python / Cython to create software to more easily design and 3D-print beautiful objects.

Education:

Ph.D., Computer Science, Courant Institute, New York University

B.Sc., Math/Computer Science, Hebrew University, Jerusalem

Graduate studies, Biochemistry, New York University

Interests:

Writing, investing, economics, history. Created [News from 1930](#), a day-by-day news summary from the start of the Great Depression (pre-Roosevelt) - favorably reviewed by the [Financial Times Alphaville](#), the [New York Times Economix](#), [Paul Krugman](#), [The Atlantic](#), and the [Wall Street Journal](#). Writer for [SeekingAlpha](#), a popular financial site.

Publications:

“The Group Lock and its Applications,” *Journal of Parallel & Distributed Computing*, April 1991.

“ZLISP - A Portable Parallel LISP Environment,” Ph.D. thesis, NYU, May 1988.

Additional experience:

2006-2010 Interactive ultra-high-quality digital film player, Grahame Weinbren, various museums and events
Developed an interactive ultra-high-image-quality digital film player used in the following events/exhibitions:

- **2006 - [Tribeca Film Festival](#) - [25 Letters](#)**, an interactive film.
- **2006-2007 - National Gallery of Art** - exhibition of two films commissioned on paintings in their collection (*Keelmen Heaving in Coals by Moonlight* by J.M.W. Turner, and *Daniel in the Lions Den* by Rubens).
- **2010 - Montclair Art Museum** - HD video/graphics installation of *49 Waltzes for the Gated City*, by Roberta Friedman and Dan Loewenthal, based on the work of John Cage.
- **2010 - ZERO1 the art and technology network** - HD video/graphics installation for *Still Life with Banquet*, an event at the [2010 O1SJ Biennial](#).

2009 Eye tracking and digital film software, Grahame Weinbren / Guggenheim Museum

Developed software for *Kandinsky: A Close Look*, a film commissioned by the Guggenheim for a major 2009 exhibition.

2008 Vision testing software, Manhattan Vision Associates

Developed specialized tests of eye movement while reading, and tests of fine depth perception using a 3D display. (Java)

2004 Digital art preservation through emulation, Grahame Weinbren / Guggenheim Museum / Daniel Langlois

Programmed an emulator for *The Erl-King*. This was one of the first interactive video artworks, dating from the early 1980's, and it used several obsolete technologies that made it increasingly hard to exhibit and preserve. The emulator was used to show *The Erl-King* at the [Seeing Double exhibition](#) at the Guggenheim Museum ([report](#)). (Java).

1999-2002 Software enabling video ads customized to individual viewers, Visible World

Designed and programmed applications enabling customization of video advertisements based on individual viewer profiles. This included creative tools (allowing editors to specify how to vary the video based on profile), and server-side programs (directing a network of servers to produce and stream video based on the editing instructions). (Java, C++, Windows, Linux).

1997-1999 High performance film server, Philips / Montage Group

Designed and programmed a film server for the Philips Virtual Datacine. The film server was a high performance parallel system capable of processing and realtime playback of uncompressed digital film images at up to 400 megabytes/sec. Programmed in C++/Unix on an SGI Origin mini-supercomputer.

1990-1994 Pioneering nonlinear digital video editor, Montage Group

Designed and programmed the video server for Montage, one of the first nonlinear digital video editors. The video server handled capture of video from analog sources, variable speed digital playback with effects, and maintenance of data on captured material. Programmed the video server in C on Windows; later ported it to Unix workstations, including the IBM PVS and the Digital Alpha.

1988-1990 Early online news service, HLH Associates

Designed and led implementation of Market Close and Sportswire, two applications used by Prodigy (an early online service) for automated content generation.

1986-1988 Full-time research staff, parallel computing, NYU Ultracomputer Project

Developed and maintained ZLISP, a portable parallel LISP environment for shared memory MIMD parallel computers.

1981-1986 Ph.D. candidate/fellowship, Courant Institute, New York University

Taught advanced undergraduate course in AI programming. Teaching assistant on several graduate courses. Research assistant, NYU Ultracomputer project.