# Matthew David Litwin

## Software Engineering Manager and Lead

* Designing and implementing front-end and back-end systems
* Managing engineers
* Creating educational software
* Strong mathematics background

## Experience / Work History

### McGraw-Hill Education

07/31/2012 – Present

#### Software Engineering Manager

1/1/2017 - Present

* Lead a diverse [Full Cycle](https://medium.com/netflix-techblog/full-cycle-developers-at-netflix-a08c31f83249) engineering team
* Backend, front-end, infrastructure, and support
* API design, technical solutions
* Management of full time employees, contractors, and vendors

Selected projects:

[*SmartBook 2*](https://www.mheducation.com/highered/connect/smartbook.html)

An HTML5 update / rethink of older (flash based) SmartBook product. My team created the authoring application for augmenting ePub content with rich metadata, enabling an adaptive end-user experience. Angular on the front-end, and multiple backend components (php, node).

*Rich-Text Glossary*

This is a component of MHE's internal authoring suite, enabling author creation of banks of glossary terms and definitions. Supports rich text, images, multiple languages. AngularJS on the front-end, node on the back-end.

#### Software Engineering Lead

1/1/2013 - 1/1/2017

Design and implementation of "Web Sketchpad", an HTML5 viewer for Geometer's Sketchpad documents. This was a ground-up re-implementation of the desktop software's internal C logic into HTML5 / JavaScript.

* Planning and design
* Implementation / coding
* Technical project management, 4 direct reports
* Negotiating feature-set and schedule with stakeholders

Here is an [engineering presentation](https://mlitwin.github.io/Cyclades) I gave using Web Sketchpad - navigate with the right and left arrow. You can see some more [pedagogic examples](https://illuminations.nctm.org/wsp/) hosted on the *National Council of Teachers of Mathematics (NCTM)* site.

#### Senior Software Engineer

7/31/2012 - 1/1/2013

Support of *The Geometer's Sketchpad* desktop product, planning and initial work for integration of Web Sketchpad into McGraw-Hill offerings.

* Coding for and releases of updates to the desktop product
* Managing the integration of initial Web Sketchpad version into Time to Know (T2K), now [Enabely](https://enabley.io/)
* Participation in adoption of SCRUM project management methodology, and transition from MediaWiki/BugZilla to Confluence/JIRA tools

### KCP Technologies

03/22/1999 – 07/31/2012

Junior Programmer to Senior Software Engineer

* C, Windows MFC, and Mac Objective C programming on [*The Geometer's Sketchpad*](https://en.wikipedia.org/wiki/The_Geometer%27s_Sketchpad), an educational geometry visualization and interaction application.
* Mac and Windows programming on *Fathom Dynamic Data Software*, an educational statistics application. Used an in-house cross-platform C++ framework.

## Skills

* Practices: Scrum, Agile Programming, XP, Pair Programming
* IDEs: XCode, Visual Studio
* Source Control: git (svn, CVS)
* Issue Tracking: JIRA, Trello, Bugzilla
* Content Management Systems: Confluence, MediaWiki

## Languages and Tools

* HTML5 / CSS / JavaScript / TypeScript
* Terraform
* Node, Perl, PHP, bash, etc.
* C / C++

## Volunteering

Volunteer for [Hesperian Health Guides](https://hesperian.org/), a nonprofit health information and health education source. Engineering for Hesperian's mobile applications using [Apache Cordova](https://cordova.apache.org/) and [Framework7](https://framework7.io/), wrapped in an [application library](https://github.com/hesperianit/hesperian-mobile). Addition technical support for them as needed.

## Education

* University of California, Santa Barbara - MS Mathematics - 1997
* University of California, Berkeley - BS Mathematics - 1994

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