

# Miguel Velez

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*"Premature optimization is the root of all evil" -Donald Knuth*

## Education

2010–2015 **B.A. Computer Science (Physic minor)**, *University of St. Thomas*, St. Paul, MN, USA.  
Advisor: Patrick Jarvis. Summa Cum Laude paper: "Current and Future Relationships Between Robots and Humans."

## Research Experience

Summer 2015 **Research Intern**, *Massachusetts Institute of Technology*, Cambridge, MA.  
Implemented features in Sketch that increased its expressiveness and made it more powerful.

2014–2015 **Undergraduate Student Researcher**, *University of St. Thomas*, St. Paul, MN.  
Parallelized CHA to increase the efficiency of analyzing the reachability of methods in source code. Enhanced WAH compression technique to query faster and more efficiently with two sets of metadata. Implemented a programming language that analyzed user input related to organic chemistry.

## Industry Experience

2016–present **Application Developer/Software Engineer**, *Sportradar US*, Minneapolis, MN.  
Accepted full-time offer. Developed an ETL application using Ruby that provided data for the NFL Radar360 research tool.

Fall 2015 **Application Developer/Software Engineer**, *Sportradar US*, Minneapolis, MN.  
Built a Ruby monitoring application to parse and build Formula 1 feeds.

Spring 2015 **Jr. Application Developer**, *SportsData/Sportradar US*, Minneapolis, MN.  
Implemented an application to parse and build MLB feeds using Ruby.

2013–2015 **Cloud Developer Intern**, *Valtira*, Minneapolis, MN.  
Implemented and maintained web applications with Java servlets, AngularJS, and MySQL databases.

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## Awards and Honors

- **MSRP Research Internship at MIT**, 2015. Acceptance rate: 10.5%
- **CCSC:MW 2015 1<sup>st</sup> place Student Posters & Showcase Discovery Track**, 2015. \$100
- **UST Student Travel Grant**, 2015. \$750
- **UST Collaborative Inquiry Grant**, 2014, 2015. \$2000
- **International Student Leadership Scholarship**, 2012. \$500
- **UST Dean's Honor List**, 2010-2015.
- **University of St. Thomas International Scholarship**, 2010-2015.
- **University of St. Thomas Tuition Scholarship**, 2010-2015.
- **American Field Service International Scholarship**, 2008-2009.

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## Publications

### Miscellaneous

- [M5] Miguel Velez and Jason Sawin. Improving the Efficiency of CHA through Parallelization. Poster. Inquiry at St. Thomas. May 2016.
- [M4] Miguel Velez and Jason Sawin. Faster WAH Compression Querying through the Use of Metadata. Poster. Consortium for Computing Sciences in Colleges Midwest Region. 1<sup>st</sup> place Discovery Track. 2015.
- [M3] Miguel Velez and Armando Solar-Lezama. Simpler Implementation of Sketches through Enhanced Expressiveness. Poster. MIT Summer Research Poster Session. 2015.
- [M2] Miguel Velez. Current and Future Relationships Between Robots and Humans. Summa Cum Laude Paper. April 2015.
- [M1] Miguel Velez, Peter Gittins, and Jason Sawin. Extending SMILES to Encode Reaction Mechanisms. Poster. Inquiry at St. Thomas. May 2014.

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## Software

- sqlplus A DSL to add alerts to various SQL DML events.  
<http://www.mijecu25.com/software/sqlplus/>
- dsa Java library of data structures and algorithms.  
<http://www.mijecu25.com/software/dsa/>
- cstats Generate information about your file directory.  
<http://www.mijecu25.com/software/cstats/>
- Cubie Cruiser 2D endless runner game written in Unity focused on avoiding obstacles.  
<http://www.mijecu25.com/software/games/cubiecruiser.html>
- Urban Tennis First full game written in Unity published for the web.  
<http://www.mijecu25.com/software/games/urbantennis.html>
- Unity Game Development Manual Guide of the basics of Unity game development.  
<https://github.com/mijecu25/unity-manual>

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## Selected Press

- “CS Major’s Research Poster Receives First Place at Conference.” UST CISC Department, *CISC Department News*, Oct. 2, 2015.
- “Two CISC Majors Win Prestigious Research Opportunities.” UST CISC Department, *CISC Department News*, Apr. 2, 2015.

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## Other Interests and Activities

- Science Club for Girls volunteer. Cambridge, MN. June 2015
- UST Game Design Club 2014 – 2015.
- Note taker 2013, 2015. Helped two students with disabilities to take notes in class.
- UST Computer Science Consultant 2012 – 2015.
- UST Computer Science Club 2011 – 2015.
- UST Globally Minded Student Association 2010 – 2015.
- St. Thomas Activities and Recreation President 2012 – 2013.
- St. Thomas Activities and Recreation Intern 2011 – 2012.
- UST Spanish Tutor 2010 – 2012.
- 2 STEM Learning Communities 2011.
- UST Morrison Hall Council 2010 – 2011.

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## References

### **Jason Sawin**

Department of Computer & Information  
Sciences

University of St. Thomas

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### **Armando Solar-Lezama**

Department of Electrical Engineering  
and Computer Science

Massachusetts Institute of Technology

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### **Patrick Jarvis**

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