

# Miguel Velez

*Ph.D. Student in Software Engineering*

Carnegie Mellon University  
School of Computer Science  
Institute for Software Research  
✉ mvelezce [at] cs.cmu.edu  
🌐 <http://www.cs.cmu.edu/~mvelezce/>  
📄 miguelvelezmj25

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

## Education

- 2016–Present **Ph.D. Software Engineering**, *Carnegie Mellon University*, Pittsburgh, PA, USA.  
Advisor: Christian Kästner.
- 2010–2015 **B.A. Computer Science (Physics 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

- 2016–Present **Graduate Research Assistant**, *Carnegie Mellon University*, Pittsburgh, PA, USA.
- Summer 2015 **Research Intern**, *Massachusetts Institute of Technology*, Cambridge, MA, USA.
- 2014–2015 **Undergraduate Student Researcher**, *University of St. Thomas*, St. Paul, MN, USA.

## Industry Experience

- Spring 2016 **Application Developer/Software Engineer**, *Sportradar US*, Minneapolis, MN, USA.  
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, USA.  
Built a Ruby monitoring application to parse and build Formula 1 feeds.
- Spring 2015 **Jr. Application Developer**, *SportsData/Sportradar US*, Minneapolis, MN, USA.  
Implemented an application to parse and build MLB feeds using Ruby.
- 2013–2015 **Cloud Developer Intern**, *Valtira*, Minneapolis, MN, USA.  
Implemented and maintained web applications with Java servlets, AngularJS, and MySQL databases.

## Publications

### Refereed Conference Publications

- [1] Miguel Velez, Jason Sawin, Alexia Ingerson, and David Chiu. “Improving Bitmap Execution Performance Using Column-Based Metadata”. In *The Int’l Conf. on Future Internet of Things and Cloud (FiCloud)*. Vienna, Austria: IEEE Computer Society, Aug. 2016, pp. 371–378. (30% acceptance rate).

### Miscellaneous

- [5] Miguel Velez and Jason Sawin. *Improving the Efficiency of CHA through Parallelization*. Poster. Inquiry at St. Thomas. St. Paul, MN, USA, May 2016.

- [4] 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. Evansville, IN, USA, Oct. 2015.
- [3] Miguel Velez and Armando Solar-Lezama. *Simpler Implementation of Sketches through Enhanced Expressiveness*. Poster. MIT Summer Research Poster Session. Cambridge, MA, USA, Aug. 2015.
- [2] Miguel Velez. *Current and Future Relationships Between Robots and Humans*. Summa Cum Laude Paper. Apr. 2015.
- [1] Miguel Velez, Peter Gittins, and Jason Sawin. *Extending SMILES to Encode Reaction Mechanisms*. Poster. Inquiry at St. Thomas. St. Paul, MN, USA, May 2014.

---

## 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. \$2,000
- **UST International Student Leadership Scholarship**, 2012. \$500
- **Bev and Pat Flaherty Scholarship**, 2011-2015. \$14,000
- **UST Dean's Honor List**, 2010-2015
- **University of St. Thomas International Scholarship**, 2010-2015. \$80,000
- **University of St. Thomas Tuition Scholarship**, 2010-2015. 40% discount
- **American Field Service International Scholarship**, 2008-2009

---

## Other Interests and Activities

- 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

---

## References

### **Jason Sawin**

Department of Computer & Information  
Sciences

University of St. Thomas

✉ `jason.sawin [at] stthomas.edu`

☎ +1 651 962 5478

### **Armando Solar-Lezama**

Department of Electrical Engineering  
and Computer Science

Massachusetts Institute of Technology

✉ `asolar [at] csail.mit.edu`

☎ +1 617 258 9727

### **Patrick Jarvis**

Department of Computer & Information  
Sciences

University of St. Thomas

✉ `pljarvis [at] stthomas.edu`

☎ +1 651 962 5482