Felipe Gutierrez

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Research Interests

Computer-aided medicine, modeling and simulation of biomedical systems, scientific computing, non-parametric statistics, machine and statistical learning.

Education

2012–2016 **BS. Applied Math Engineering & Physics**, *UW-Madison*, Madison, *CGPA: 3.4*.
Advisor: Dan Negrut. Senior Project: "Modeling and simulation of fluid-solid interaction on distributed memory architectures using Charm++ parallel programming framework"

2012–2016 **BS. Computer Science**, *UW-Madison*, Madison, *Major GPA: 3.6*.
Advisor: Vikas Singh. Thesis: "On the performance and accuracy of non-parametric multiple hypothesis testing algorithms."

Positions Held

Academic/Research

2013–present **Research Assistant**, *Simulation-Based Engineering Lab*, Madison, WI.
Investigate parallel programming techniques and technologies for GPU, and shared and distributed memory architectures, and apply them to fluid-solid interaction problems. Develop web-based and scripting tools.

2015–present **Research Assistant**, *Wisconsin ADRC Imaging Group*, Madison, WI.
Worked with Vamsi Ithapu and Prof. Vikas Singh on accelerating permutation testing algorithms by taking advantage of the problem structure (low-rank matrix) or the available hardware (GPU and Multi-threading).

Industry

2014 **Explorer Intern**, *Microsoft Corporation*, Seattle, WA.
Performed the overall development of the UX that allows Maps app users to interact with the available layers. The UX addressed desktop, phone and tablet.

Old

Summer 2013 **Student Help**, *Madison Plasma Dynamo Experiment*, Madison, WI.

2012-2013 **Web Developer**, *Dept. of Nutritional Sciences*, Madison, WI.

Awards/Honors

2015 Blue Waters Student Internship Program - NCSA Blue Waters Project

2014 Frontier Fellowship - Wisconsin Institutes for Discovery

2013 Welton Honors Summer Sophomore Apprenticeship Grand - Honors Program

Publications

NeuroImage (anticipated)	**Felipe Gutierrez**, Vamsi Ithapu, Vikas Singh. On the performance and accuracy of non-parametric multiple hypothesis testing algorithms. *NeuroImage* (anticipated submission, Jan. 2016)
ASME CIE 2016	**Felipe Gutierrez**, Arman Pazouki, Dan Negrut, Radu Serban. Modeling and simulation of fluid-solid interaction problems on distributed memory architectures with Charm++. *ASME International Design Engineering Technical Conferences and Computers and Information in Engineering Conference*, 2016. Abstract Submitted.
ASME CIE 2014	Daniel Kaczmarek, Aaron Bartholomew, **Felipe Gutierrez**, Hammad Mazhar, Dan Negrut. Chrono::Render: A graphical visualization pipeline for multibody dynamics simulations. *ASME International Design Engineering Technical Conferences and Computers and Information in Engineering Conference*, 2014.

Presentations

2015	**Machine-Ground Interaction Consortium**, Madison, WI.
	Simulating fluids on distributed memory architecture using the Charm++ programming framework.
2013	**UW-Madison Undergraduate Symposium**, Madison, WI.
	Small Radio Telescope Probes Dark Matter.

Computer Skills

10,000+ lines	C, C++, Matlab.
1,000+ lines	Python, Java, Javascript, C#.
Parallel Tools	CUDA, Charm++, MPI, OpenMP, ArrayFire.
Tools	Unix-based systems, Git, LaTeX , Mex, Armadillo, PostgreSQL, SQLAlchemy.
Web and App	HTML/CSS, Flask, Windows App Dev.

Outreach and Leadership

ProCSI	Co-coordinator of Promoting the Computational Science Initiative outreach program in 2013 and 2015. Directed CAD and intro to programming modules.
Alfabetizacion	Volunteer tutor for elementary and middle school children in math and english. (2010-2011)
Waterski	UW-Madison Waterski team captain and trick coach for 2 years. Competing member, 4 years.

Languages

Spanish	**Fluent**	*Native Language*
English	**Fluent**	*12 years of study. Lived in the US of 4+ years.*
French	**Intermediate (B1+ level)**	*2 years of study. Lived 6 months in France.*

References

Vikas Singh

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Dan Negrut

Department of Mechanical Engineering
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