CURRICULUM VITAE — Juan Pablo Duarte Sepúlveda

Current Position	**Graduate Student Researcher, BSIM Group** Department of Electrical Engineering & Computer Sciences, University of California, Berkeley 550 Sutardja Dai Hall, MC1764, Berkeley, CA 94720.
Mobile	+1-510-506-0311
Email	jpduarte@berkeley.edu
Homepage	http://eecs.berkeley.edu/~jpduarte
Place of birth	Santiago, Chile

Expertise

Semiconductor technology device/circuit/system design, modeling, simulation, and characterization. Technology aware hardware design for deep learning and artificial neural networks. Biosensor design and characterization. Negative-Capacitance FETs.

Education

Sept. 2012 - May 2018

Ph.D. Electrical Engineering & Computer Sciences
University of California, Berkeley
Thesis: *Mathematical Compact Models of Advanced Transistors for Numerical Simulation and Hardware Design*
Advisor: Professor Chenming Hu
Course work included: IC Devices, Solid State Devices, Introduction to Digital ICs, Advanced Digital ICs, Numerical Simulation and Modeling, Numerical Solutions of Differential Equations, Introduction to Finite Element Method, and Interactive Device Design

Sept. 2010 - Feb. 2012

M.S. Electrical Engineering
Korea Advanced Institute of Science and Technology
Thesis: *Core Compact Models for Multiple-Gate Field-Effect-Transistors*
Advisor: Professor Yang-Kyu Choi
Electrical Engineering course work included: MEMS in EE Perspective, Optoelectronic Semiconductor Devices and Their Applications, Analog Electronic Circuits, Electronics Design Laboratory, High Frequency Electronic Devices, and CMOS Front-end Process Technology

Mar. 2007 - Aug. 2010

B.S. Electrical Engineering
Korea Advanced Institute of Science and Technology
Electrical Engineering course work included: Digital System Design, Signals and Systems, Control System Engineering, Electronic Circuits, Analog Electronic Circuits, Electromagnetics, Radio Engineering, Introduction to Physical Electronics, Semiconductor Devices, Integrated Circuits Design, Semiconductor IC Technology, Introduction to VLSI Devices (graduate course), Introduction to Organic Electronics (graduate course), Modern Physics for Engineers (graduate course), and Electronics labs. Physics additional course work included: Modern

	Physics, Classical Electromagnetism I/II, and Quantum Mechanics I/II
Mar. 2005 - Dic. 2006	**Electronic Engineering Student** Universidad Técnica Federico Santa María, Chile

Honors and Awards

2013	Best Student Paper Award at the 2013 International Conference on Simulation of Semiconductor Processes and Devices (SISPAD) for the paper "Unified FinFET Compact Model: Modelling Trapezoidal Triple-Gate FinFETs"
2010 – 2011	International graduate student scholarship, Korea Advanced Institute of Science and Technology
2007 – 2010	International undergraduate student scholarship, Korea Advanced Institute of Science and Technology
2006	First prize, *Academic Merit Award*, Universidad Técnica Federico Santa María, Chile
2005 – 2006	Honor student, Departamento de Electrónica, Universidad Técnica Federico Santa María, Chile
2005 – 2006	Undergraduate scholarship, Universidad Técnica Federico Santa María, Chile

Publications

Over 56 publications, including journals, conferences, and book chapters. Over 1200 citations (Publication list: `http://tinyurl.com/juanpublications`). Industry standard spice model releases for BSIM6, BSIM-CMG, and BSIM-IMG (`http://bsim.berkeley.edu/`).

Skills

Programming and Scientific Languages	Python, Verilog, MATLAB, Mathematica, Origin, C, Java, Arduino, Processing, HTML, LaTeX
Circuit and System Tools	Hspice, Cadence Spectre, Cadence Schematic, Cadence Virtuoso Layout, Synopsys VCA, Synopsys IC Compiler, Synopsys Primetime, NGSpice, Pspice, HFSS, ModelSim, Xilinx ISE Desing Suite, CST Microwave Studio, CoventorWare
Process and Device Simulation	ATLAS, ATHENA, Synopsys TCAD tools
Operating system	Linux, Windows
CMOS Device Fabrication	Experience with different types of equipment such as contact aligner, tube furnaces, wet etching and cleaning equipment, etc.
CMOS Device Characterization	Experience with different types of equipment such as probe stations, microscopes, LCR meter, in-line test equipment, etc.
Product Design	Laser Cutter, 3D Printing, Fusion 360, Eagle
Sensor Technology	CMOS based bio-sensors, accelerometers, gyroscopes, magnetometers, force-sensitive resistors, ribbon sensors, photo cells, long flex sensors

Experience

2012 - Present	**University of California, Berkeley** *Graduate Student Researcher, BSIM Group* Founded Project: *Unified Compact Model of Advanced CMOS*
2017	**University of California, Berkeley** *Main Lecturer* DeCal Course: Hardware Makers
2016	**University of California, Berkeley** *Graduate Student Instructor* Course: Designing Information Devices and Systems II (Fall/Spring)
2015	**IBM, Yorktown, NY** *Summer Research Intern* Complementary Metal-Oxide Semiconductor (CMOS) Device intern at Thomas J. Watson Research Center
2012	**Universidad Técnica Federico Santa María**, Valparaíso, Chile *Lecturer* Courses: *Laboratorio de Sistemas Digitales*, *Diseño Avanzado de Sistemas Digitales*, *Física Electrónica*
2010 – 2012	**Korea Advanced Institute of Science and Technology**, Daejeon, Korea *Graduate Research Assistant* with Prof. Yang-Kyu Choi Founded Projects: *Exploration of Nano-Fusion Memory Technology*. Nano-Material Technology Development Program through the National Research Foundation of Korea (NRF) funded by the Ministry of Education, Science and Technology. *Development of novel 3D stacked devices and core materials for the next generation flash memory*. IT R&D program of MKE/KEIT. *Terabit Nonvolatile Memory Development*. IT R&D program of MKE/KEIT. *Trans-scale convergence technology for nano devices*. National Research Foundation of Korea funded by the Korean government. Semiconductor Inc.
2009 – 2010	**Korea Advanced Institute of Science and Technology**, Daejeon, Korea *Undergraduate Research Assistant* with Prof. Yang-Kyu Choi Project: *Underlap field effect transistor modeling for biosensor applications*
2009	**Korea Advanced Institute of Science and Technology**, Daejeon, Korea *Research internship* with Prof. Hyun Myung Project: *Mobile Harbor Control Design*
2006	**Universidad Técnica Federico Santa María**, Departamento de Física, Valparaíso, Chile *Teacher Assistant* with Prof. Pedro del Canto Course: *Introducción a la Física*

Languages

Spanish	Native speaker
English	Fluent
Korean	Basic
Indonesian	Intermediate

Extracurricular Activities

2017	USA Cycling Collegiate Road National Championships, Sixth place Team Qualification/Sixteenth place Individual Qualification, Grand Junction, CO.
2016	Founder of Cyclists Green Initiative
2016	USA Cycling Collegiate Road National Championships, Fifth place Team Pursuit, Asheville, NC.
2015	Community Service, The Berkeley Project
2010 – 2012	Member of International Food Committee, KAIST
2009 – 2012	Representative of Latin America in KISA, KAIST International Student Association
2009	Cofounder Association of Chilean Students in Korea
2009 – 2010	Member of KAPEX, the SoC design group in KAIST
2007	KAIST Swimming Competition, Third prize 200m
2004 – Present	Surfing and Longboard Skating
2003	National Cycling Championship, Second place, Chile
2003	National Velodrome Championship, Third place, Team Pursuit, Chile

References

Prof. Chenming Hu	Advisor during graduate study at University of California, Berkeley
Telephone	+1-510-642-3393
E-mail	hu@eecs.berkeley.edu
Website	bsim.berkeley.edu
Prof. Yang-Kyu Choi	Advisor during graduate study at KAIST, South Korea
Telephone	+82-42-350-3477
E-mail	ykchoi@ee.kaist.ac.kr
Website	nobelab.kaist.ac.kr