Carlos Andres Esteva

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Employability Status: US Citizen

EDUCATION

Stanford University — Palo Alto, CA — **GPA: 4.0/4.0**
PhD Candidate, Electrical Engineering — 09/2012-05/2017
M.S., Electrical Engineering (2015)

The University of Texas at Austin — Austin, TX — **GPA: 4.0/4.0**
B.S., Electrical and Computer Engineering, — 08/2007 – 12/2011
B.S., Pure Mathematics

Study Abroad: — Toulouse, France — 02/2010 – 06/2010
Institut National des Sciences Appliquées (INSA)

Research Interests:

- Artificial Intelligence for healthcare, medicine, and biology
- Machine Learning & Computer Vision, with a focus on Deep Learning
- Computer-aided diagnostics

PhD Research Adviser: Sebastian Thrun
(robots.stanford.edu)

Funding Sources:

- Department of Energy Office of Science Graduate Fellow (4% acceptance rate)
- Stanford Graduate Fellowship, Leonard J. Shustek Fellow
  (highest honor awarded by Stanford to incoming graduate students)

SKILLS

Programming: Python, MATLAB, Mathematica, C, C#, C++, Java, Assembly
Algorithms: Machine Learning, Probabilistic Graphical Models, Convex Optimization
Language Fluency: Spanish, French
Public Speaking, Persuasive and Technical Writing, Leadership, Project Management

WORK EXPERIENCE

Intern, Google Research / [X] — Mountain View, CA — 6/2015-9/2015
Deep learning and Computer Vision for semantic analysis of large-scale drug-screening experiments. Utilized Google DistBelief and TensorFlow architectures for distributed machine learning.

Deep Learning Consultant — Bay Area, CA — 11/2014-6/2015
Technical and strategic advising for startups. Aided in the development of deep learning platforms for their products, including data gathering and codebase development.

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Optimization Intern, **Sandia National Laboratories** — Albuquerque, NM — 01/2012-07/2012
High Energy Density Physics Group
Optimization of the current pulse through the Sandia Z-Machine using evolutionary and optimization algorithms, circuit models, and cluster supercomputing. Significantly increased capacity of existing systems.

Electronic and Nanostructure Group — 05/2011-12/2011
Optimized the geometry of metamaterial unit cells using evolution-based algorithms. Implemented these algorithms to evolve unit cells based on desired effective material parameters

Optimization Intern, **Centre d'Etude Spatiale des Rayonnements** — Toulouse, France — 06/2010-08/2010
Designed MATLAB software to simulate EM-wave detector for satellite use, leading to better optimized detector design
Led discussions and team meetings solely in French.

Imaging Intern, GE Healthcare X-ray Imaging Team, — Waukesha, WI — 05/2009-08/2009
Created graphical user interface for x-ray image analysis
Achieved reduction of the algorithm development cycle for the team
Constructed novel x-ray detectors for testing prototype x-ray units

Academic Tutor, **UT Learning Center** — Austin, TX — 08/2008-12/2009
Tutor students in math, physics, and engineering
Developed the ability to effectively explain academic concepts

Mentor, **UT Freshman Interest Group Office** — Austin, TX — 08/2008-12/2009
Served as role model for a group of first-year engineering students
Planned seminars and events and provided tutoring and support

Orientation Advisor, **New Student Services, UT Austin** — Austin, TX — 05/2008-8/2008
Facilitated events and programs for 8800 incoming students
Taught 160 students social justice and diversity on campus

Lifeguard/Swim Instructor, **YMCA** — Plano, TX — 06/2005-05/2007
Ensured safety by preemptively identifying potential hazards
Gained experience in risk management and patron issues

RESEARCH EXPERIENCE

Artificial Intelligence for Healthcare — Stanford, CA — 12/2014-Present
Prof. Sebastian Thrun
Deep Learning, machine learning, and computer vision applied to dermatology. Design of algorithms for the automated diagnosis and image-based tracking of skin lesions.

Deep Learning for Autonomous Driving — Stanford, CA — 08/2014-12/2014
Prof. Andrew Ng
Designing perception in autonomous driving vehicles using deep learning and computer vision (using Caffe). Implemented Convolutional Neural Networks on a mobile device.

Computer Vision, Computational Neuroscience — Stanford, CA — 03/2014-8/2014
Prof. Fei Fei Li, & Surya Ganguli
Theory of deep learning as a means to understand neural computation. Investigating the connectivity of the human visual system using machine learning applied to fMRI data. Researching, at scale, the role of scene affordances in scene classification using Amazon Mechanical Turk.

Computational Physics — Stanford, CA — 10/2012-01/2014
Prof. Jennifer Dionne, Stanford
Theory and simulations of quantum effects in plasmonic nanostructures. Synthesis of lanthanide nanoparticles for solar cells & neuroscience applications

Electronic Metamaterials — Austin, TX — 08/2010-12/2011
Dr. Andrea Alu, UT Metamaterials Group
Investigated plasmonic sphere arrangements and core-shell structures for use in optical metamaterial design. Established collaboration between UT and Sandia Laboratories' Organization "Electronic and Nanostructured Materials"

Visible Light Communication — Austin, TX — 08/2010-05/2011
Dr. Robert Heath, UT Wireless Networks and Communications
Conceptualized and designed, with a team of students, a wireless communication system that uses visible light to transmit information.

Epithelial Cancer Imaging — Austin, TX — 01/2009-12/2009
Dr. Konstantin Sokolov, UT Biomed Optics and Nano-diagnostics
Applied polarized reflectance spectroscopy technique to image the epithelium.
Developed a MATLAB segmentation algorithm to determine nuclear parameters, leading to better understanding of nuclear growth and distribution in pre-cancers.

Nonlinear Dynamics, UT Austin — Austin, TX — 05/2008-09/2008
Dr. Jack Turner, UT Nonlinear Dynamics
Constructed software using the Runga-Kutta computational technique to solve and graph specific non-linear dynamics systems.

PUBLICATIONS

Dermatologist-level Classification of Skin Cancer using Deep Neural Networks
Andre Esteva*, Brett Kuprel*, Rob Novoa, Justin Ko, Susan M. Swetter, Helen Blau, Sebastian Thrun
*equal contribution authors

Skin Cancer Detection and Tracking using Data Synthesis and Deep Learning
Yunzhu Li*, Andre Esteva*, Brett Kuprel, Rob Novoa, Justin Ko, Sebastian Thrun
*equal contribution authors

G. Pusiol, A. Esteva, M. Frank, L. Fei-Fei, "Vision-based classification of developmental disorders using eye movements", MICCAI 2016.

M. Greene, C. Baldassano, A. Esteva, L. Fei-Fei, "Visual Scenes are categorized by Function". Journal of Experimental Psychology.

C. Baldassano, A. Esteva, D. Beck, L. Fei-Fei, "Two distinct scene processing networks connecting vision and memory". Journal of Vision.

T. Dean, B. Ahanonu, M. Chowdhury, A. Datta, A. Esteva, D. Eth, N. Redmon, O. Rumyantsev, Y. Tarter, "On the Technology Prospects and Investment Opportunities for Scalable Neuroscience". *arXiv* q-bio.NC, (2013).

C.A. Esteva, "Metamaterial Structural Design: Creating optical-frequency metamaterials with plasmonic nano-particle arrangements and generating unit cells with evolutionary algorithms", Undergraduate Thesis, Department of Electrical and Computer Engineering, The University of Texas at Austin, December 2011

C. A. Esteva, J. Massey, K. Cook, B. Levy (Equal Contribution Authors), "Visible Light Communication System", Senior Design Report, Cockrell School of Engineering, The University of Texas at Austin, May 2011

PRESENTATIONS/POSTERS

C. Baldassano, A. Esteva, D. Beck, L. Fei-Fei, "Comparing and Parcellating Voxel-scale multimodal human brain connectivity". Fourth Biennial Conference on Resting State /Brain Connectivity (Sept 2014).

A. Esteva, S. Ganguli, L. Fei-Fei, "Eigenvector Analysis and Dimensionality Reduced Visualization of Families of Deep Neural Networks Trained on an Artificial Manifold". Department of Energy Office of Science Graduate Fellowship Program 2014 Annual Conference, Aug. 2014

C.A. Esteva, J. Dionne, "Investigating quantum-influenced effects in plasmonic nanoparticle dimers and trimers", Department of Energy Office of Science Graduate Fellowship Program 2013 Annual Conference, Aug. 2013

C. A. Esteva, A. Alu, " Metamaterial Structural Design: Creating optical-frequency metamaterials with plasmonic nano-particle arrangements and generating unit cells with evolutionary algorithms ", Engineering Thesis Symposium, The University of Texas at Austin, Austin, TX, November 2011

C. A. Esteva, M.B. Sinclair, " Metamaterial Geometry Optimization using Evolution-based Algorithms", Student Intern Program Research Symposium, Sandia National Laboratories, Albuquerque, NM, August 2011

C. A. Esteva, J. Massey, K. Cook, B. Levy (Equal Contribution Authors), "Indoor Visible Light Communication System Testbed", Electrical Engineering Senior Design Open House, The University of Texas at Austin, Austin, TX, April 2011

C. A. Esteva, L. Nieman, K. Sokolov, "Imaging with Polarized light for epithelial cancer detection", Biomedical Engineering Symposium, The University of Texas at Austin, April 2009

SERVICE / LEADERSHIP

Webmaster, Optical Society of America – Stanford Chapter	09/2013-05/2014
Organizer, Energy @ Stanford & SLAC Conference	03/2013-08/2013
Industry Outreach Representative, Materials Research Society	10/2012-05/2013
Officer, Stanford Energy Club	10/2012-05/2013
Education Committee Member, Engineers Without Borders	08/2011-01/2012
Project Lead, DreamCatchers, Introducing Engr. Projects to k-12 Native Americans	06/2011-08/2011
Selected Participant, LeaderShape Institute	05/2011
Tutor/Mentor, Garza High School for At-Risk Students	01/2011-05/2011
Performer, Texas Latin Dance, Competitive Salsa Company	01/2011-05/2011
Active, Tau Beta Pi Engineering Honor Society	08/2010-12/2011
Active, Eta Kappa Nu Electrical Engineering Honor Society	08/2010-12/2011
Competitive Gymnast, UT Gymnastics Team	08/2010-12/2011
3-Level Trilingual Salsa Instructor, INSA Toulouse, France	02/2010-06/2010
Recording Secretary, Tau Beta Pi Engineering Honor Society	08/2009-12/2009
Performer, Mezcla Dance, Competitive Salsa Company	08/2008-05/2009
Event Manager, Cultural Integrity Day, Senate of College Councils	08/2007-05/2008
Students for Acad. Integrity Committee, Senate of College Councils	08/2007-05/2008
Bilingual Assistant Scuba Instructor, Moon Palace, Cancun, Mexico	06/2004-06/2004
Black Belt Student and Instructor, Tae Kwon Do, Plano Martial Arts	01/2001-08/2007

HONORS/AWARDS

Accel Innovation Scholarship (12 awarded): Entrepreneurial Training/Advising	9/2014-6/2015
Stanford Startup Weekend 2014 – 1st Place –Deep Learning on Mobile Platform	11/2014
Accel Ventures Innovation Scholar (Equivalent to Mayfield Fellows for PhD students)	05/2014
Department of Energy Office of Science Graduate Fellowship (4% acceptance rate)	04/2012
Stanford Graduate Fellowship (highest honor awarded to incoming graduate students)	04/2012
National Defense Science and Engineering Graduate Fellowship (declined)	04/2012
National Science Foundation Graduate Fellowship (declined)	03/2012
Duke University Scholars Fellowship and Dean's Graduate Fellowship (declined)	03/2012
Whitaker International Biomedical Engineering Graduate Fellowship (declined)	03/2012
Fulbright Grant Finalist	01/2012
Engineering Outstanding Scholar/Leader Award (1 per graduating class – highest honor awarded to a graduating engineering senior)	12/2011
Hertz Fellowship Interviewee, First round	11/2011
Ettlinger Award in Math – College of Natural Sciences nomination, UT-Austin	10/2011
Endowed Presidential Scholarship in Electrical Engineering, merit-based, UT-Austin	08/2011
UT Women in Engineering K-12 STEM Outreach Certificate	05/2011
Invitation to District Senior Design Competition of Texas	05/2011
UT Electrical Engineering Senior Design Competition– 6th Place Overall	04/2011
Membership by Invitation, Phi Beta Kappa –America's Oldest Honor Society	04/2011
Distinguished College Scholar Award, Engr & Nat. Science (top 4% GPA), UT-Austin	04/2011
Maxine and Jack Zarrow Family Endowed Scholarship in Engineering, merit-based	08/2010-05/2011
Radio Club of America Scholarship (RCA), merit-based	08/2010-05/2011
John Robert Monkhouse Endowed Scholarship in Electrical Engineering, merit-based	08/2010-05/2011
College Scholar Award, Engineering (top 10% GPA), UT-Austin	04/2010
Charles C. and Lula May Wilson Endowed Scholarship, merit-based	01/2010-05/2010
Radio Club of America Scholarship (RCA), merit-based	08/2009-05/2010
Tracor/Frank W. McBee, Jr. Scholarship, merit-based	08/2009-05/2010
Ariane Beck/Eric Sebesta Endowed Scholarship in Electrical Engineering, merit-based	08/2009-05/2010
Membership by Invitation, Eta Kappu Nu – National Elect. Engineering Honor Society	08/2009
Distinguished College Scholar Award (top 4% GPA), Engineering	04/2009

Membership by Invitation, Tau Beta Pi – National Engineering Honor Society	01/2009
University Research Fellowship Recipient, merit/vision based, UT-Austin	04/2009
Invitation to Engineering Honors Program, merit-based, UT-Austin	08/2008
Texas Higher Education Coordinating Board Scholarship, merit-based	01/2008-05/2008
National Hispanic Scholarship Award, merit-based	08/2007-05/2011