

## **Addiel Ulises de Alba Solis – MSc**

### **Bioengineering, M.Sc.**

*University of California San Diego, USA.*

### **Computer Science and Engineering, M. Eng.**

*University of California Irvine, USA.*

### **Electrical and Electronic Engineering, B.Sc.**

*ITESM-Monterrey Tec, Guadalajara, Mexico.*

**E-mail:** [addielu@gmail.com](mailto:addielu@gmail.com) **Phone number:** +52 3324938000, +1 (858)255-4562

<https://www.linkedin.com/in/addieldealba/>



## **Education**

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2013 **Master of Science in Bioengineering.** University of California San Diego. La Jolla, California, USA.

2009 **Master of Engineering** (ACE, Art, Computation, Engineering Program). University of California Irvine. Irvine, California, USA.

2002 **B.Sc. In Electrical and Electronic Engineering.** Instituto Tecnológico y de Estudios Superiores de Monterrey (Monterrey Tec), Mexico.

## **Awards**

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2017 1st place in IBM's biggest hackathon (2017) at <https://www.talent-network.org/en/home/>, health sciences (5,000 USD).

2013 UCSD Bioengineering Dean's fellowship. La Jolla, CA, USA (10,000 USD).

2010 Mexican National Council of Science and Technology (CONACYT). Awarded full scholarship funding degree of MSc in Bioengineering. University of California San Diego. La Jolla, California, USA (100,000 USD).

2007 Mexican National Council of Science and Technology (CONACYT). Awarded full scholarship funding degree of M.S. in Engineering (Art, Computation, Engineering program). University of California Irvine (100,000 USD).

2007 UCI Engineering Dean's fellowship. Irvine, CA, USA (10,000 USD).

2007 Art Computation Engineering Program, UCI. Funding thesis project. Irvine, CA, USA.

## Professional Experience

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### **Center for Genomic Sciences - National Autonomous University of Mexico**

<https://www.ccg.unam.mx/en/>

Synthetic Biology Laboratory.

*Job Title:* Researcher.

*Dates of employment:* Nov 2022 - Present.

### **Coderhouse**

*Job title:* Professor - Bioinformatics.

*Dates of employment:* November 2022 - Present. Argentina, Mexico, LATAM.

Teaching bioinformatics and data science. Generating content for the data analytics and data science specializations.

*Technologies:* Python, R.

### **Crown Bioscience / KBI Biopharma**

*Job title:* Data Scientist, Data Engineer, Sr. Consultant - Sr. Python Data Engineer.

*Dates of employment:* November 2021 - November 2022.

Providing the biopharmaceutical and life sciences industries with integrated drug development and manufacturing solutions, from large-scale in vitro and in vivo drug candidate efficacy studies to the clinical and commercial supply of biologics. Advancing human health by improving the probability of success, decreasing timelines, and increasing the efficacy of innovative therapies by helping translate innovative science into life-saving medicines.

### **UNIVERSITY OF GUADALAJARA**

General Medicine Physician (partial satisfaction of requirements).

*Tasks:* Analysis of patient-generated health data. Assistant surgeon practitioner.

*Research Supervisor:* Hugo Chavez, M.D.

*Dates of attendance:* August 2015 -

### **RENALIA - Internal Medicine and Nephrology Medical Center**

*Job title:* Technical Leader - Data Scientist, Software Architect.

*Dates of employment:* November 2019 - July 2021. Guadalajara, Mexico.

- Development of mobile medical apps.
- Continuous development of data science applications.
- Software engineering, application architecture design, team leading, machine learning pipeline design and deployment.

*Technologies:* AWS, Oracle, MySQL, PostgreSQL, R, Python, R-Shiny Web Apps, Amazon Sagemaker, AWS Apache Airflow. Mobile App Development with AWS. Spark-SQL, R-Spark. React, Nodejs, TypeScript, Android Studio, X Code.

*Mobile apps developed:* Google Play: <https://bit.ly/2JkC1vM> App Store : <https://apple.co/38f4LNM>

All Day Doctor: <https://bit.ly/2WfnQyS> Med Student App: <http://medstudentapp.com/>

**LIFE X** <http://lifexds.com/> – Own Company

*Job title:* Senior Engineer - Data Scientist – Mobile App Developer.

*Dates of employment:* October 2016 - July 2018. Guadalajara, Mexico.

*Project description:*

Being a research and development leader provided me motivation to develop a *Web App* that won me the first place in IBM's biggest hackathon in 2017.

- Developed Web App for breast cancer patients: patient-generated health data integrated with mobile app and machine learning predictive models using IBM Watson (SPSS) on the IBM cloud computing environment (<https://www.ibm.com/cloud>).
- Planner, designer, leader, developer, data scientist. Planned architecture and coded mobile app.
- Design thinking for full functionality of mobile apps. Built SPSS Machine learning models (neural networks, recommendation algorithms, sentiment analysis, tone analysis) for predicting drug response of patients, monitor patients mood and recommend daily activities for improving patient's health.
- Used IBM Watson APIs for some of these ML modules.

*Tools and technologies used:* SPSS, IBM Cloud. Nodejs, Reactjs, IBM Watson.

## **UNIVERSITY OF CALIFORNIA SAN DIEGO**

### **Systems Biology Research Group.**

*Dates of employment:* September 2010 - December 2013.

*Job title:* Graduate Student Researcher.

*Project/Role description:* *Genome Scale Modeling of human metabolism.*

- Designed a mathematical model for human metabolism using linear algebra and numerical simulations (Matlab, Mathematica and R).
- Models were based on advanced linear algebra, XML Systems Biology mathematical representations of chemical reactions.
- Data used in these models was cleaned, prepared and analyzed with R software.

*Technologies:* Matlab, Mathematica, linear algebra toolboxes/libraries on Matlab, R.

## **UNIVERSITY OF CALIFORNIA IRVINE**

### **Art Computation Engineering Program and Action Lab for Robotic Interaction at UC Irvine.**

*Job title:* Graduate Student Researcher.

*Dates of employment:* August 2007 - August 2009.

*Project/Role description:* Restored and redesigned kinetic robotic sculptures for Art Galleries.

*Technologies:* Arduino IDE, Java, Eagle Cad software. Complete circuit design.

## **BEDU** (<https://bedu.org/>)

*Job title:* Data scientist and AWS expert.

*Dates of employment:* February 2020 - November 2021. Mexico City, Mexico.

- Teaching Tableau, SQL, MongoDB, R programming and Python for machine learning courses.
- Planning, creating, generating content for Data Analytics Program for IT professionals.

*Technologies:* R programming, R Studio, AWS, Python Numpy, Scipy, Scikit-learn, Theano, TensorFlow, Keras, PyTorch, Pandas, Matplotlib. Maria DB, MongoDB Atlas, Google Cloud, R Shiny, GitHub.

## **IMPAQ INTERNATIONAL**

*Job title:* Data Science Project Manager - Data Analyst, Data Scientist, Software Architect.

*Dates of employment:* Sep 2020 - February 2021. Guadalajara, Mexico.

- Application architecture design, team leading.

*Technologies:* AWS, Oracle, MySQL, PostgreSQL, Java, Python.

## **WIPRO LIMITED**

*Job title:* Data Analytics Project Manager.

*Dates of employment:* November 2018- October 2019. Guadalajara, Mexico.

- Application architecture design, team leading.

*Technologies:* Hadoop Ecosystem, Oracle DB Server, Arcadia Data, Java-Spark, Spark-SQL.

## **HCL ENTERPRISE**

*Job title:* Senior Software Engineer - Technical Writer.

*Dates of employment:* August 2018 - October 2018. Guadalajara, Mexico.

- Azure architecture design, writing documentation, writing user stories, writing REST API documentation.
- Analysis and design of API reference and document guides repository.

*Technologies:* MS Azure, Swagger tools, Jira, Confluence.

## **AD.NET**

*Job title:* Big Data Engineer.

*Dates of employment:* April 2018- June 2018.

*Technologies:* Cloudera, Hadoop, Hadoop Map-Reduce, MySQL, Linux. IntelliJ IDE, Jira, Confluence, Python.

## **SALUD FACIL**

*Job title:* Big Data Architect and IT manager.

*Dates of employment:* January 2017-July 2017.

*Project/Role description:* Built a decision tree model using RapidMiner machine learning pipeline.

*Technologies:* PHP, Rapid Miner, Cloudera Hadoop, Python, Spark.

## **A4SYS**

*Job title:* Predictive Analyst and Developer in Hadoop and RapidMiner, Machine Learning.

*Dates of employment:* March 2014 - August 2015.

*Project/Role description:* Built a machine learning recommendation engine.

*Tools and technologies:* MySQL , Oracle, Rapidminer, Hadoop, Python.

## **TELMEX**

*Job title:* Software Engineer.

*Dates of employment:* June 2003 - May 2006.

## Skills

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**Molecular Biology:** General molecular biology techniques, mammalian cell culturing, bacterial culturing, affinity protein purification, Western blotting, ELISA, Immunochemistry, cytotoxicity, Flow Cytometry, Fluorescence Activated Cell Sorting (FACS), qRT-PCR.

**Computer Literacy:** Python, R, Java, R-Spark, Spark-SQL. AWS, Google Cloud, IBM Cloud, SPSS, Rapidminer. RStudio, RServer, Matlab. Mathematica and Jupyter Notebooks. SQL, MySQL, MariaDB, Oracle, MongoDB and noSQL. Mobile Apps SDLC, Android & iOS. Android Studio, Xcode. Flask, Amazon SageMaker, Apache Airflow. Google Health and Fitbit SDK. **Operating Systems:** Windows, MAC OS X, Linux. **Hardware:** Motorola microcontroller programming: series HC08, 68000. Arduino microcontroller programming: Atmel Atmega8. EAGLE electronic design automation (EDA) software.

**Media Design:** MAX/MSP/Jitter, GIMP, Photoshop, L-Edit for MEMS. Canva, Moqups, Video Editing, Audacity, Audio Editing.

## Writing

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*Complex Systems in Science and Art: Instrumented Beehive and the Visualization of Self-Organized Temperature Regulation in Western Honey Bees.*

Thesis. University of California, Irvine, 2008 - 166 pages.

[https://books.google.com.mx/books/about/Complex\\_Systems\\_in\\_Science\\_and\\_Art.html?id=W0HIPgAACAAJ](https://books.google.com.mx/books/about/Complex_Systems_in_Science_and_Art.html?id=W0HIPgAACAAJ)

*Systems Biology books.*

*Contributions:* Editing, writing, reviewing.

[http://assets.cambridge.org/97811070/01596/frontmatter/9781107001596\\_frontmatter.pdf](http://assets.cambridge.org/97811070/01596/frontmatter/9781107001596_frontmatter.pdf)

“Addiel U. de Alba Solis helped with the Mathematica workbooks for Parts I and II of the text. Very helpful in reviewing, correcting, and providing solutions to the homework sets given in Appendix B.” - Bernhard Palsson.

[http://assets.cambridge.org/97811070/38851/frontmatter/9781107038851\\_frontmatter.pdf](http://assets.cambridge.org/97811070/38851/frontmatter/9781107038851_frontmatter.pdf)

## Teaching Experience

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January 2011. Systems Biology. Teaching Assistant. UCSD, 25 % Appointment.

April 2011. Biochemistry. Teaching Assistant. UCSD, 50 % Appointment.

September 2010. Human Physiology. Teaching Assistant. UCSD, 25 % Appointment.

## Licenses and Certifications

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### ***Medicine - Programming - AI - Machine Learning:***

2021 AI for Medical Prognosis.

Issuing authority: Coursera.

License: <https://www.coursera.org/account/accomplishments/certificate/4EGUBPA7MEK6>

2020 R Programming.

Issuing authority: Johns Hopkins University - Coursera.

License: <https://coursera.org/share/6f6ea7577e6ce43d49e6b697e6f43826>

2020 Machine Learning with Python.

Issuing authority: IBM - Coursera.

License: [https://www.youracclaim.com/badges/25e6bb4a-1a7e-433c-adbe-261dbcfca833/linked\\_in\\_profile](https://www.youracclaim.com/badges/25e6bb4a-1a7e-433c-adbe-261dbcfca833/linked_in_profile)

### ***Cloud Platforms and Solutions:***

2022 Microsoft Certified: Azure Fundamentals.

Issuing authority: Microsoft.

License: <https://www.credly.com/badges/e20bac14-18a6-4cfa-b241-cc16f4b7cfed>

### ***Project Management:***

2020 Project Management Principles and Practices Specialization.

Issuing authority: University of California, Irvine Division of Continuing Education.

License: <https://www.coursera.org/account/accomplishments/specialization/A2CCM95XDWZE>

### ***Languages:***

2016 English, TOEFL.

2016 French university diploma. University of Guadalajara.

2006 English, GRE.

### ***Complex Systems:***

2008 Complex physical, biological and social systems course. New England Complex Systems Institute. Location: MIT, Cambridge, MA.

2008 Networks, modeling and evolution course. New England Complex Systems Institute. Location: MIT, Cambridge, MA.

2006 Artificial Life. Lecture by Professor Nicholas Gessler. Human Complex Systems Program. Location: UCLA, Los Angeles, CA, USA.

## Research Participations & Collaborations (Selected)

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**2006 Complexity, emergent behavior in social dynamics of insects.**

Electronically instrumented beehive (Own design of a real beehive for scientific observation), visualization of complex dynamics of the system.

**2007 Bio Joy.**

Interactive wearable biofeedback wristwatch that can help relieve day to day stress by monitoring people's stress levels and suggesting alternatives to reduce / eliminate them. Includes a Micro Electromechanical System (MEMS) with embedded blood pressure and accelerometer sensors whose combined output is a function of the emotional state and well being of a person.

**2007 3D Texture Based Volume Rendering** and Image transfer functions for MRI scans from women breast images.

**2002 Portable ECG (electrocardiogram) under PALM OS©** platform for emergency response in cardiovascular patients.

**2007 Walleye.** Graduate Student Researcher at Action Lab for Robotic interaction. Supervised work by Professor Simon Penny. Spatialised compound eye machine vision installation by Simon Penny. UCI.

**2005-7 Restoration of 'Petit Mal':** Autonomous Robot by Simon Penny.

Graduate Student Researcher at Action Lab. Supervised work by Professor Simon Penny. UCI.