JUAN M. FONSECA-SOLÍS

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At day, to earn a living: Bs. of computer science specialized in software quality control and assurance with experience in functional and non-functional (accessibility, security, a/b testing) testing for mobile and web applications in agile environments. Elaboration of test plans, estimation and execution of test cases (smoke, regression, sanity), quality metrics reporting, and automation.

At night, as my alter-ego: M. Sc. in electronics with an emphasis in digital signal processing with a taste for algorithm development applied to frequency analysis, denoising, compression, filtering, interpolation, Kalman sensor fusion, and feature extraction.

My interests are in: in the areas of mathematical signal processing, audio processing and acoustics, medical devices, wearables, pattern recognition (machine learning), IoT, quality control and assurance, and audio/video quality metrics (QoE) techniques.

EXPERIENCE

Avantica Technologies (and Indecomm company) 06/18 – present — San José, CR
Software quality assurance engineer II

- Performed manual testing for two clients, one dedicated to personal credit management and the other to photo personalization services. Technologies: Optimizely, Kibana, Mixpanel, JBoss, MySql, Charles Proxy, Jenkins, Zeplin, Miro, Graphene, Postman, cUrl, TestRails, and Photoshop.
- Wrote an internal training for testing web services (Rest and Soap) using state-of-the-art tools. Technologies: SoapUI, Postman, RestAssured, cURL, and Swagger.
- Provided insights for audio and video quality metrics (PESQ, among others).

Universidad de Costa Rica 09/16 – 12/17 — San José, CR
Research scientist at Research Center on Information and Telecomunication Technologies (CITIC)

- Tested and improved an audio signal processing algorithm for recognizing rich-harmonic pitch contours in highly polluted environments (the sound of accessible pedestrian signals).
- Implemented the solution in a mobile application (`https://play.google.com/store/apps/details?id=ucr.citic.rasp`) and publicated the results in two scientic journals. Technologies: Android SDK, Octave/Matlab, MusicG, Android-plot, and LaTeX.

Avantica Technologies 11/13 – 09/16 — San José, CR
Software quality assurance engineer

- Delivered high-quality products for an amazing crew whose lemma was "helping people make better health decision".
- Executed and estimated test cases at different levels: integration, regression, web-services, performance, security, and accessibility (WCAG 2.0).
- Automated UI test cases and took care of the CD/CI pipeline. Developed an internal application for sanitizing beacons that saved hours of frustration to the team. Technologies: Selenium WebDriver on C#, Charles Proxy, Splunk, GO pipeline, Sortsite, and Burp.

Universidad de Costa Rica 03/14 – 07/14 — San José, CR
Teaching Assistant, sound processing course CI2813

- Coordinated course projects and assisted 12 students in their assignments.

Smartsoft Int. 07/13 - 11/13 — San José, CR
Software engineer

· Developed applications for banking. Technologies: Soap APIs, C#, Visual Basic.

EDUCATION

Instituto Tecnológico de Costa Rica (TEC) *01/16 - 07/18 — Cartago, CR*
M.Sc. in electronics with emphasis in digital signal processing. Overall GPA: 3.6/4.0

Universidad de Costa Rica (UCR) *03/07 - 06/13 — San José, CR*
Bs in computer science and informatics.

TECHNICAL STRENGTHS

Proficient with	C/C++, C#, Bash, Python, MATLAB, Java, LaTeX, SQL.
Familiar with	JS/HTML/CSS, Intel Assembler, Verilog, Prolog.
Not already mentioned tools	Linux (vim, autotools, valgrind, GBD, QEMU), Git, OpenCV, Pandas, Jupyter notebook.
Libraries	Numpy, Scipy, Matplotlib, JUnit, OpenMP.
Numerical tools	Fourier transform, Z transform, filter design, PCA, Mahalanobis, SVD, psychoacustics, Wiener filters, Kalman filters, K-means, Naive bayes, MFCC, CNN, HMM.

LANGUAGE

English	TOEIC (B2 on 2014).
Spanish	native speaker.

RELEVANT COURSES

CS	**EE**
Operating systems	Digital signal and image processing
Artificial intelligence	Software Verification
Software engineering I & II	Embedded systems
Computer networks	Computer vision
Databases I & II	FPGA prototyping
Computer architecture	Sound processing
Compilers and automatas	Functional analysis and LO theory
Probability and statistics	Pattern recognition
Calculus I-III	Adaptive signal processing
Operations research	Intellectual Property
Linear algebra	Systems and models

VOLUNTEER EXPERIENCE

- Jan-Apr 13. Developed the first webpage for ACAI, the costarican implementing agency of the United Nations High Commissioner for Refugees (UNHCR). Technologies used: Drupal, CSS, HTML 5. URL: `http://www.acai.cr/sitioweb/`.

MASSIVE OPEN ONLINE COURSE (MOOC)

- Digital Signal Processing, École Polytechnique Fédérale de Lausanne. Aug 2018. License: Y4TSW9PA3SS3.

- Introduction to Embedded Systems Software and Development Environments, University of Colorado Boulder, Jul 2018. License: A3UNMYW48L4F.
- Programming Mobile Applications for Android Handheld Systems: Part 1 & 2, Computer Science Department, University of Maryland, Feb-Apr 2017. Licenses: WE959Z2968U4 and 45R4J2TCZULK.

PUBLICATIONS

- Avantica Technologies. *Chosen idea of Innovathon 2015.* Designed math and circuitry for a data acquisition system that used a sonometer and a ESP8266 for logging the levels of acoustic intensity in open-plan offices during videoconference time. The ideas was used also to assess abnormal temperature levels in the server room.

PUBLICATIONS

- Author. *Accessible pedestrian signals recognition using an adaptive approach.* Escuela de electrónica. TEC. Cartago, CR. 2018. Master thesis. `https://repositoriotec.tec.ac.cr/handle/2238/11099`.
- Co-author. *Automatic recognition of accessible pedestrian signals.* The Journal of the Acoustical Society of America 141. 3913. Boston, USA. 2017. `https://doi.org/10.1121/2.0000675`.
- Co-author. *Automatic recognition of accessible pedestrian signals.* JoCICI17 (2). Cartago, Costa Rica. 2017. `https://www.academia.edu/39100068/Reconocimiento_automatico_de_se%C3%B1ales_accesibles_de_semaforo_en_dispositivos_m%C3%B3viles`
- Author. *Detección de voces y otros ruidos en ambientes de trabajo y estudio.* JoCICI15 (1): 68-71. CITIC-PCI. San José, CR. 2015. `https://www.academia.edu/39038694/Detecci%C3%B3n_de_voces_y_otros_ruidos_en_ambientes_de_trabajo_y_estudio`
- Author. *Automatic pitch recognition in a computer game interface.* Ingeniería 25 (1): 13-33, ISSN: 2215-2652; 2015. San José, CR. 2015. `https://doi.org/10.15517/ri.v25i1.11751`.