

JUAN M. FONSECA-SOLÍS, COSTA RICA

Portfolio: juanfonsecasolis.github.io

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On weekdays: software quality control engineer with experience in functional and non-functional testing for web applications at full-agile environments. Familiar with mobile device testing. Elaboration of test plans, estimation, automation, and execution of test cases (smoke, regression, sanity), and quality metrics.

On weekends: digital signal processing fellow devoted to the development of algorithms for music pitch recognition, forecasting, voice recognition, frequency analysis, denoising, compression, filtering, interpolation, sensor fusion, and feature extraction.

Interests: mathematical signal processing, digital audio processing, software quality control and assurance, audio/video quality of experience (QoE), pattern recognition, and wearables.

EXPERIENCE

Gorilla Logic

03/20 – present — San José, CR

Mid Automation QA Engineer

- Performed manual/automated testing for clients dedicated to pipeline inspections and order fulfillment.
- **Technologies:** Azure DevOps, Xamarin UI tests, behavioral driven development (BDD) with SpecFlow, RestSharp, xUnit.net, Postman, JD Edwards (ERP), Kafka.

Avantica Technologies (now an Indecomm company)

06/18 – 02/20 — San José, CR

Software quality assurance engineer II

- Performed manual testing for clients dedicated to photo personalization services and personal credit management. Wrote an internal training for testing Rest and Soap web services using state-of-the-art tools, and provided insights for audio and video quality metrics (PESQ, among others).
- **Technologies:** Optimizely, Kibana, Mixpanel, JBoss, MySQL, Charles Proxy, Jenkins, Zeplin, Miro, Graphene, TestRails, and Photoshop, SoapUI, Postman, RestAssured, cURL, Swagger, security testing (BURP, CSRF, brute force attacks).

Universidad de Costa Rica

09/16 – 12/17 — San José, CR

Research scientist at the Research Center on Information and Telecommunication Technologies, CITIC

- Tested and improved an audio signal processing algorithm for recognizing rich-harmonic pitch contours in highly polluted environments. The algorithm was later adapted to recognize the sound of accessible pedestrian signals. Implemented the solution in a mobile application ([downloadable here](#)) and publicated the results in two scientific journals.
- **Technologies:** Android SDK, Octave/Matlab, MusicG, Android-plot, and L^AT_EX.

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#, Python, Java, C/C++, Bash, MATLAB, L ^A T _E X, SQL/PL.
Familiar with	JS/HTML/CSS, Intel Assembler, Verilog.
Tools	Linux (vim, autotools, valgrind, GDB, QEMU), Git, OpenCV, Pandas, Jupyter notebook, RestSharp/RestAssure, BURP, Xamarin UI tests, Postman, MySql/Oracle/SQL developer, Jenkins, SoapUI, Selenium WebDriver, Sikuli, Splunk, Kibana.
Libraries	Numpy, Scipy, Matplotlib, JUnit, OpenMP.
Numerical tools	Fourier transform, Z transform, IIR and FIR filter design, PCA, Mahalanobis, SVD, psychoacoustics, Wiener filters, Kalman filters, K-means, Naive bayes, MFCC, CNN, HMM.

LANGUAGE**English** TOEIC (B2 on 2014).**Spanish** native speaker.**RELEVANT COURSES****CS**

Operating systems
 Artificial intelligence
 Software engineering I & II
 Computer networks
 Databases I & II
 Computer architecture
 Compilers and automatats
 Probability and statistics
 Calculus I-III
 Operations research
 Linear algebra

EE

Digital signal and image processing
 Software Verification
 Embedded systems
 Computer vision
 FPGA prototyping
 Sound processing
 Functional analysis and LO theory
 Pattern recognition
 Adaptive signal processing
 Intellectual Property
 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) at <http://www.acai.cr/sitioweb/>.

- **Technologies:** Drupal, CSS, HTML 5.

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.

AWARDS

- 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.

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_automatizado_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>.

HOBBIES

- Amateur soprano recorder player.
- Horticulture.
- Citizen science projects (Japan Safecast).