

Camilo ESCOBAR-VELÁSQUEZ

Universidad de los Andes, Bogota, Colombia 111711
Systems and Computing Engineering Department
Carrera 1 N° 18A - 12 – Office: ML-753

ca.escobar2434@uniandes.edu.co
<https://caev03.github.io>
Skype: caev03

Research Interests

Software Engineering, Evolution and Maintenance, Repository Mining, **Software Testing**, Automated/Automatic Testing of Android Apps, Automated Testing of Web Apps, **Visual Analytics**, Software Understandability, **Mobile Health**

Education

Ph.D. Engineering, 2019 - 2023

Universidad de los Andes, Colombia

Thesis Title: On improving analysis and testing of open- and closed-source Android Apps

Advisor: Mario Linares-Vásquez, Universidad de los Andes, Colombia

Co-Advisor: Gabriele Bavota, Università della Svizzera italiana, Switzerland

Committee: Denys Poshyvanyk, Massimiliano Di Penta, Nicolás Cardoso

Ph.D. Research Fellowship, Informatics, Sept. 2020 - Aug. 2021.

Swiss Government Excellence Scholarship for Foreign Scholars

Università della Svizzera italiana, Lugano, Switzerland

Field: Automation of Software Engineering Tasks

Advisor: Gabriele Bavota, Università della Svizzera italiana, Switzerland

M.Sc. Software Engineering, 2017 - 2018.

Universidad de los Andes, Colombia

Advisor: Mario Linares-Vásquez

Thesis Title: Automatic Analysis of Android Closed-Source apps to Support Software Engineering Tasks: The Mutation Testing Case

B.S. Systems and Computing Engineering, 2012 - 2016.

Universidad de los Andes, Colombia

Minor: Mathematics

Advisor: Jose Tiberio Hernández

Research Experience

Professional Researcher - January 2022 - June 2023

Ministry of Science; Fundación CardioInfantil; Universidad de los Andes, Colombia

Graduate Doctoral Teaching Assistant - Jan. 2019 - December. 2021

Systems and Computing Engineering Department - Universidad de los Andes, Colombia

Graduate Research Assistant - Jan. 2017 - Dec. 2018

Systems and Computing Engineering Department - Universidad de los Andes, Colombia

Teaching Experience

Assistant Professor

Mobile App Development - August 2023 - Present

Systems and Computing Engineering - Universidad de los Andes, Colombia

Web Development - August 2023 - Present

Systems and Computing Engineering - Universidad de los Andes, Colombia

Automated Software Testing - August 2023 - Present

Masters in Software Engineering - Coursera - Universidad de los Andes, Colombia

Software Engineering for Mobile Apps - August 2023 - Present

Masters in Software Engineering - Coursera - Universidad de los Andes, Colombia

Lecturer

Mobile App Development - January 2023 - June 2023

Systems and Computing Engineering - Universidad de los Andes, Colombia

Web Development - January 2023 - June 2023

Systems and Computing Engineering - Universidad de los Andes, Colombia

Automated Software Testing - January 2021 - June 2023

Masters in Software Engineering - Coursera - Universidad de los Andes, Colombia

Software Engineering for Mobile Apps - January 2023 - June 2023

Masters in Software Engineering - Coursera - Universidad de los Andes, Colombia

Teacher Assistant

Software Engineering for Mobile Apps - June 2021 - December 2022

Masters in Software Engineering - Coursera - Universidad de los Andes, Colombia

Automated Software Testing - January 2018 - December 2020

Masters in Software Engineering - Universidad de los Andes, Colombia

Mobile App Development - January 2020 - December 2020

Systems and Computing Engineering - Universidad de los Andes, Colombia

Lab Instructor

Design and Analysis of Algorithms, *Lab Instructor* - Jan. 2017 - Jun. 2017

Systems and Computing Engineering - Universidad de los Andes, Colombia

Professional Service

Organizing Comittee

The 32nd International Conference on Program Comprehension

ICPC'24, Lisbon, Porto. [https://https://conf.researchr.org/home/icpc-2024](https://conf.researchr.org/home/icpc-2024)

The 39th International Conference on Software Maintenance and Evolution

ICSME'23, Bogotá, Colombia. <https://conf.researchr.org/home/icsme-2023>

The 1st Languages and Tools for Next Generation Testing Workshop

LANGETI'20, Nov 9, 2020, Sacramento, CA, USA. <https://langeti.github.io/>

Reviewer for International Journals

TSE. Transactions on Software Engineering

Program Comittee

ICPC'24. April 15-16, 2024, Lisbon, Portugal. *PC - Research Track*

MSR'23. May 15-16, 2023, Melbourne, Australia. *Junior PC - Research Track*

MOBILESoft'22. May 22-23, 2022, Pittsburgh, PA, USA. *Tool Demo and Mobile Apps*.

ESEC/FSE'21. August 18-29, 2021, (Virtually). *Artifacts Track*.

MSR'21. May 23-24, 2021 (Virtually). *Shadow PC - Research Track*

Student Volunteer

ICST'20, Oct 24-28, 2020, Porto, Portugal.

ICSME'20, Sep 27 - Oct 3, 2020, Adelaide, Australia.

ICSE'20, July 6-11, 2020, Seoul, South Korea.

ASE'19, November 11-15, 2019 - San Diego, CA, USA.

ICSE'19 - May 25-31, 2019 - Montreal, Canada.

ICSME'18 - September 23-29, 2018 - Madrid, Spain.

Talks

On improving quality of analysis and testing for Open- and Closed-source Android App. Encuentro de Experiencias de Investigación en Ingeniería EEII2022 at Universidad de los Andes - December 2022 - Bogotá, Colombia

Enabling Automated Software Engineering Tasks for Closed-Source Android Apps. 70th Anniversary of Research and Creation at Universidad de los Andes - November 2018 - Bogotá, Colombia

Honors and Awards

PhD Scholarship for teachers from Colombian Ministry of Science

Scholarship to pay PhD Tuition - Minciencias 909

Jan. 2022 - Dec. 2022 - Bogotá, Colombia

Swiss Government Excellence Scholarships for Foreign Scholars

Enabling Automated Software Engineering Tasks for Closed-Source Mobile Apps

Sep. 2020 - Aug. 2021 - Lugano, Switzerland

Google Latin American Research Award

Enabling Automated Software Engineering Tasks for Closed-Source Mobile Apps

2020 - 2021 - Bello Horizonte, Brasil

Google Latin American Research Award

Enabling Automated Software Engineering Tasks for Closed-Source Mobile Apps

2019 - 2020 - Bello Horizonte, Brasil

ACM SIGAI travel scholarship

The 34th International Conference on Automated Software Engineering

2019 - San Diego, CA, USA

Google Latin American Research Award

Enabling Automated Software Engineering Tasks for Closed-Source Mobile Apps

2018 - 2019 - Bello Horizonte, Brasil

1st Place Team Competition

Testathon - Chapter 30

April 2019 - Bogotá, Colombia

1st Place Hackaton Against Human Trafficking

FIND: A Technological Environment to fight Human Trafficking

November 2018 - Bogotá, Colombia

Journal Publications

- [J5] Ravelo-Méndez, W., **Escobar-Velásquez, C.**, Linares-Vásquez, M., “*Kraken 2.0: A platform-agnostic and cross-device interaction testing tool.*”, in Science of Computer Programming 2022
- [J4] Mazuera-Rozo, A., **Escobar-Velásquez, C.**, Espitia-Acero, J., Vega-Guzmán, D., Trubiani, C., Linares-Vásquez, M., Bavota, G., “*Taxonomy of security weaknesses in Java and Kotlin Android apps*”, in Journal of Systems and Software 2022 (JSS’22)
- [J3] **Escobar-Velásquez, C.**, Mazuera-Rozo, A., Bedoya, C., Osorio-Riaño, M., Linares-Vásquez, M., Bavota, G., “*Studying eventual connectivity issues in Android apps*”, in Empirical Software Engineering 2022 (EMSE’22)
- [J2] Ravelo-Méndez, W., **Escobar-Velásquez, C.**, Linares-Vásquez, M., “*Kraken: A framework for enabling multi-device interaction-based testing of Android apps.*”, in Science of Computer Programming 2021
- [J1] **Escobar-Velásquez, C.**, Linares-Vásquez, M., Bavota, G., Tufano, M., Moran, K., Di penta, M., Vendome, C., Bernal-Cardenas, C., Poshyvanyk, D., “*Enabling Mutant Generation for Open and Closed-Source Android Apps*”, in IEEE Transactions on Software Engineering 2020 (TSE’20)

Conference Publications

- [C14] Mazuera-Rozo, A., **Escobar-Velásquez, C.**, Espitia-Acero, J., Linares-Vásquez, M., Bavota, G., “*CONAN: Statically Detecting Connectivity Issues in Android Applications*”, in Proceedings of the 31st ACM Joint European Software Engineering Conference and Symposium on the Foundations of Software (ESEC/FSE’23) - Tool Demo Track, San Francisco, CA, USA, December 3-9, 2023.
- [C13] Mazuera-Rozo, A., **Escobar-Velásquez, C.**, Espitia-Acero, J., Linares-Vásquez, M., Bavota, G., “*Detecting connectivity issues in android apps*”, in Proceedings of the 29th IEEE International Conference on Software Analysis, Evolution and Reengineering (SANER’22) - Research Track, Honolulu, HI, USA, March 15-18, 2022.
- [C12] Ravelo-Méndez, W., **Escobar-Velásquez, C.**, Linares-Vásquez, M., “*Kraken 2.0: A platform-agnostic and cross-device interaction testing tool*”, in Proceedings of the 29th IEEE International Conference on Software Analysis, Evolution and Reengineering (SANER’22) - Tool Demo Track, Honolulu, HI, USA, March 15-18, 2022.
- [C11] Naranjo-Puentes, S., **Escobar-Velásquez, C.**, Vendome, C., Linares-Vásquez, M., “*A Preliminary Study on Accessibility of Augmented Reality Features in Mobile Apps*”, in Proceedings of the 29th IEEE International Conference on Software Analysis, Evolution and Reengineering (SANER’22) - Early Research Achievement Track, Honolulu, HI, USA, March 15-18, 2022.
- [C10] Mojica-Hanke, A., Bello-Jiménez, L., **Escobar-Velásquez, C.**, Linares-Vásquez, M., “*Crème de la crème. Investigating Metadata and Survivability of Top Android Apps*”, in Proceedings of the 29th IEEE International Conference on Software Analysis, Evolution and Reengineering (SANER’22) - REproducibility Studies and NEgative Results Track, Honolulu, HI, USA, March 15-18, 2022.

- [C9] **Escobar-Velásquez, C.**, Donoso-Díaz, A., Linares-Vásquez, M., “*ITDroid: A Tool for Automated Detection of i18n Issues on Android Apps*”, in Proceedings of the 8th International Conference on Mobile Software Engineering and Systems 2021 (MobileSoft’21)) - Tool Demo Track, Madrid, Spain, May 17 - 19, 2021.
- [C8] **Escobar-Velásquez, C.**, Riveros, D., Linares-Vásquez, M., “*Mutapk 2.0: a tool for reducing mutation testing effort of android apps*”, in Proceedings of the 28th ACM Joint Meeting on European Software Engineering Conference and Symposium on the Foundations of Software Engineering 2020 (ESEC/FSE’20) - Tool Demo Track, Sacramento, CA, USA, November 6 - 16, 2020.
- [C7] **Escobar-Velásquez, C.**, Osorio-Riaño, M., Domínguez-Osorio, J., Arevalo, M., Linares-Vásquez, M., “*An empirical study of i18n collateral changes and bugs in guis of android apps*”, in Proceedings of the 36th IEEE International Conference on Software Maintenance and Evolution 2020 (ICSME’20) - Research Track, Adelaide, Australia, September 27th - October 3rd, 2020.
- [C6] Bello-Jiménez, L., **Escobar-Velásquez, C.**, Mojica-Hanke, A., Linares-Vásquez, M., “*Hall-of-Apps: The Top Android Apps Metadata Archive*”, in Proceedings of the 17th International Conference on Mining Software Repositories 2020 (MSR’20) - Data Showcase Track, Seoul, South Korea, October 5-11, 2020.
- [C5] Trujillo, M., Linares-Vásquez, M., **Escobar-Velásquez, C.**, Dusparic, I., Cardozo, N., “*Does Neuron Coverage Matter for Deep Reinforcement Learning? A Preliminary Study*”, in Proceedings of the 2nd Workshop on Testing for Deep Learning and Deep Learning for Testing 2020 (DeepTest’20) - Research Track, Seoul, South Korea, October 5-11, 2020.
- [C4] **Escobar-Velásquez, C.**, “*Source-Codeless Testing for Android Apps*”, in Proceedings of the 13th IEEE International Conference on Software Testing, Validation and Verification 2020 (ICST’20), Doctoral Symposium, Porto, Portugal, October 24-28, 2020.
- [C3] **Escobar-Velásquez, C.**, Osorio-Riaño, M., Linares-Vásquez, M., “*MutAPK: Source-Codeless Mutant Generation for Android Apps*”, in Proceedings of the 34th International Conference on Automated Software Engineering 2019 (ASE’19), Tool Demo, San Diego, USA, November 11-15, 2019.
- [C2] Ravelo-Méndez, W., **Escobar-Velásquez, C.**, Linares-Vásquez, M., “*Kraken-Mobile: Cross-Device Interaction-based Testing of Android Apps*”, in Proceedings of the 35th International Conference on Software Maintenance and Evolution 2019 (ICMSE’19), Tool Demo, Cleveland, OH, United States, October 2-4, 2019.
- [C1] Linares-Vásquez, M., Bavota, G., **Escobar-Velásquez, C.**, “*An Empirical Study on Android-Related Vulnerabilities*”, in Proceedings of the 14th International Conference on Mining Software Repositories 2017 (MSR ’17), Research Paper, Buenos Aires, Argentina, May 20-21, 2017.

Advised Students

PhD Students

William Ravelo-Méndez. (2024-I - Present) Topic: *Software Reliability*

Master Students

Juan Acosta. (2024-I - Present) Topic: *Android Apps Architecture*

Undergraduate Students

2024-I

Santiago FacioLince-Hernández. Topic: *Software Reliability: Android Apps*

Santiago Bobadilla-Suarez. Topic: *Algorithm Quality: Mutation Testing*

Esteban Gonzalez-Ruales. Topic: *Orchestration of IoT procedures in educational environments*

Juan Montealegre-Sandoval. Topic: *Software in Education: Automated Assessment of Dev Projects*

Juan Colmenares-Ortiz. Topic: *Software in Education: Automated Assessment of Dev Projects*

David Gonzalez-Pereira. Topic: *Software in Education: Automated Assessment of Dev Projects*

Jairo Gómez-Mendoza. Topic: *Software in Education: Web App Development*

Daniel Reyes-Ramirez. Topic: *Software in Practice: Cerebrovascular Accidents*

2023-II

Esteban Martinez-Hernandez. Topic: *Orchestration of IoT procedures in educational environments*

Felipe Duque-Martinez. Topic: *Software in Practice: Visual Analytics*

Juan Bogota-Alfonso. Topic: *Software in Education: Mobile App Development*

2022-II

Daniel Valbuena-Bautista. Topic: *AI for Automated Testing of Mobile Apps*

2022-I

Camila Pantoja-Gómez. Topic: *AI for Automated Testing of Android Apps*

Edgar Díaz-Suárez. Topic: *AI for Automated Testing of Android Apps*

Camilo Roza-Benitez. Topic: *AI for Automated Testing of Android Apps*

Mario Andrade-Vargas. Topic: *Automated Internationalization of Android Apps*

2021-II

Andrés Donoso-Díaz. Topic: *Automated Internationalization of Android Apps*

2020-I

Michael Osorio-Riaño. Topic: *Automated Systematic Exploration of Android Apps*

2019-II

Juan Domínguez-Osorio. Topic: *Automated Systematic Exploration of Android Apps*

Andrés López-Fabara. Topic: *Automated Systematic Exploration of Android Apps*

2019-I

William Ravelo-Méndez. Topic: *Interaction-based Testing of Android Apps.*