

SERGIO VALBUENA

Ph.D., M.Sc., Civil Engineer



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savalbuena

PROFILE

Postdoctoral Researcher at the University of California – Davis with 6 years of experience in fluid dynamics and numerical modeling of physical processes in water bodies. Currently developing a numerical model for mercury cycle in a mine-contaminated site as the principal investigator. Knowledgeable in physical processes in lakes, Computational Fluid Dynamics (CFD), data analysis from field observations, and data and instrument management. Adept at implementing innovative practices for engineering problem-solving and optimization. Entrepreneur with fast learning and adaptability skills in search of continuous professional growth in a teamwork environment.

EDUCATION

University of California – Davis

2018 – 2022

Doctor of Philosophy

Civil and Environmental Engineering

Water Resources

Lake Hydrodynamics

Advisors: Fabian Bombardelli & Geoffrey Schladow

University of California – Davis

2017-2020

Master of Science, Civil & Environmental Engineering

Emphasis in Water Resources and Nearshore Lake

Hydrodynamics

Advisor: Fabian Bombardelli

Colombian School of Engineering Julio Garavito

2011-2016

Bachelor of Science, Civil Engineering

Honors:

Summa Cum Laude

TECHNICAL SKILLS

- Matlab A.K.
- si3D A.K.
- OpenFOAM A.K.
- HEC-RAS A.K.
- AutoCAD A.K.
- Python A.K.
- Microsoft Excel A.K.
- Data Management A.K.
- Time Series A.K.
- ArcGIS B.K.
- QGIS B.K.
- Microsoft Project B.K.
- SQL B.K.

advanced knowledge: A.K.

basic knowledge: B.K.

LANGUAGES

Spanish



NATIVE

English



TOEFL

Italian



A1

WORK EXPERIENCE

Hydraulic Engineer

Assistant of M.Sc. Alejandro Duran. / Bogotá D.C, Colombia / Sept 2016 – Sept 2017

Functions: perform and report hydrologic and hydraulic studies to more than 100 small lakes and wetlands in Cundinamarca, Colombia. Highway hydraulic design of two road sectors in Cundinamarca, Colombia.

Project Engineer

INNOVATECH STRATEGIC SOLUTIONS S.A.S – Based in Houston, Texas, USA / Office Bogotá D.C, Colombia / Jan 2016 – Sept 2016

Functions: professional support in the construction, plan monitoring strategy, budget structuring, preparation of reports, progress, and traceability of projects.

HONORS & AWARDS

University Colombian School of Engineering Julio Garavito – 2016

- Summa Cum Laude within the Civil Engineering department for best overall undergraduate GPA.

California Lake Management Society (CALMS) Scholarship – 2021

- One of the 4 graduate students to receive the scholarship during the summer of 2021

Goldman – Schladow Limnology Fellowship – 2022

- Fellowship awarded to UC Davis graduate students conducting limnological research on California lakes in general and particularly those doing research on Lake Tahoe at TERC

David and Dana Loury Foundation Fellowship – 2022

- Fellowship awarded in recognition of outstanding academic record and promise of productive scholarship.
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RESEARCH EXPERIENCE

- Developing numerical model to investigate the mercury cycle in a mine-contaminated lake
 - Led field campaigns to investigate water clarity losses due to anthropogenic activities in the nearshore area of a lake.
 - Data manager of the Nearshore Network long-term program for the Tahoe Environmental Research Center to monitor water quality near the shore around Lake Tahoe.
 - Investigated boat-induced sediment resuspension in shallow flows by applying 3D numerical modeling of a recreational boat and by analyzing in-situ observations
 - Investigated 3D dynamics of upwelling events in rotationally influenced lakes and water quality by applying the hydrodynamical model si3D.
 - Defined theoretical thresholds for the influence of the Coriolis force on the flow dynamics during upwelling events in lakes by implementing computational fluid dynamics.
 - Investigated deep water re-oxygenation during upwelling events by analyzing in-situ time series observations of over 4 years.
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