Balasubramanian Suryanarayanan

Curriculum Vitae

Work Experience

January 2023–Present
Co-Founder, ACRES OF ICE .
More than half of the water used for agriculture in some cold-arid mountain regions like Ladakh come from glaciers. However, these ice reservoirs are shrinking rapidly leading to decline in crop productivity and desertification of some villages. And so, farmers here have started growing artificial ice reservoirs as insurance against this uncertainty. In the last 5 winters, more than 500 farmers built around 50 ice stupas storing more than 120 million litres in 30 villages of this region. Acres of Ice wants to help these farmers store 10 times more water every winter with almost no effort through automated fountain systems.

September 2018–Present
PhD, ARTIFICIAL ICE RESERVOIRS.
Developing a weather based physical model to predict meltwater discharge and survival duration of Artificial Ice Reservoirs (AIRs, also called icestupas).This PhD project is funded via the Swiss Government Excellence Scholarship

August 2015–March 2019
Project Manager, ICE STUPA ARTIFICIAL GLACIERS.
Project goal is to store wasting winter water in the form of ice structures that melt and feed the farms when water is most needed by the farmers. I documented the projects activities through films for dissemination in the media. Also I designed pipeline systems to achieve the desired discharge for various ice stupa implementations. I also implemented the project in Switzerland and Peru as part of our outreach activities.

[View Project News]

August –September 2016
Project Manager , SIKKIM STATE DISASTER MANAGEMENT AGENCY.
Part of the team of 4 selected to lead the expedition aimed to mitigate risk of a potential Glacial Lake Outburst Flood(GLOF) by draining the lake using siphon technique.

[View Blog]

Education

September 2017
Karthaus School, *Sudtirol, Italy*, Summerschool on Ice Sheets and Glaciers in the Climate System.
[View Course]

April 2017–July 2017
Machine Learning, COURSERA.
This course provides a broad introduction to machine learning, datamining, and statistical pattern recognition. Passed it with a grade of 95.3

July 2015–August 2016	**India Fellow**, *Ladakh*, Placed as an apprentice to SECMOL founder Sonam Wangchuk.. [View Blog]
Aug 2010–May 2015	**Integrated M.Sc.(Maths)**, *National Institute of Science Education and Research*, Bhubaneswar, 6.27/10. [View Thesis]
2007–2009	**Central board of Secondary Education(Class 12)**, *Kendriya Vidyalaya Ashok Nagar*, Chennai, *81.8 %*.
2005–2007	**Central board of Secondary Education(Class 10)**, *Kendriya Vidyalaya Ashok Nagar*, Chennai, *90.2 %* .

Computer

Programming Languages	Python, C++, IDL, CSS, HTML
Packages	Jupyter, AnyLogic, LaTeX, Google Earth, FinalCutPro, Wordpress

Languages

Tamil, English, Hindi, French   *Conversationally fluent*

Publications

2023	Suryanarayanan Balasubramanian, Martin Hoelzle, Roger Waser. Fountain Scheduling Strategies for Improving Water-Use Efficiency of Artificial Ice Reservoirs (Ice Stupas). Cold Regions Science and Technology
2022	Suryanarayanan Balasubramanian, Martin Hoelzle, Michael Lehning, Jordi Bolibar, Sonam Wangchuk, Johannes Oerlemans, Felix Keller. Influence of Meteorological Conditions on Artificial Ice Reservoir (Icestupa) Evolution. Frontiers in Earth Science
2021	J. Oerlemans, S. Balasubramanian, C. Clavuot, F. Keller. Brief communication: Growth and decay of an ice stupa in alpine conditions – a simple model driven by energy-flux observations over a glacier surface. The Cryosphere

Referees

Martin Hoelzle, *Professor*, University of Fribourg.
Email:martin.hoelzle@unifr.ch

Sonam Wangchuk, *Founder*, HIAL.
Email:sonamsolar@gmail.com

Felix Keller, *Lecturer*, ETH Zurich and Academia Engiadina.
Email:felix.keller@hftgr.ch

Johannes Oerlemans, *Professor*, Utrecht University .
Email:j.oerlemans@uu.nl