# Tim Tregubov

Director, Co-founder at DALI Lab;
Senior Lecturer in Computer Science
Dartmouth College

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*Mission: Educating and Innovating through Code, Design, and AI*
*Interests: Growing builders, building product, community, land, craftsmanship, and family.*
*Languages: English and Russian*

## 💡 INNOVATION & LEADERSHIP

**DALI Lab**  http://dali.dartmouth.edu                                   *April 2013 – Present*

**Director, Co-founder**  2017 – Present
**Technical Director, Co-founder**  2013 – 2017

- Manage a technical and programmatic framework to provide an experiential learning environment for tech and design.
- Mentor and supervise 120+ students per term from across campus, in small teams to design, develop, implement, and launch systems and applications.

**CableMakerspace**  https://cablemakerspace.dartmouth.edu                  *September 2024 – Present*

**Program Director**

- Direct a community-focused student-run makerspace & program offering various equipment, engagement events, and programming.

## 📖 TEACHING

**Dartmouth College**  https://web.cs.dartmouth.edu                         *March 2016 – Present*

**Senior Lecturer in Computer Science**  2018 – Present
**Lecturer in Computer Science**  2016 – 2018

- **CS52 Full Stack Web Development** (16X, 17S, 18S, 19S, 20S, 20X, 21X, 22S, 23S, 24S, 25W, 25S, 26W) – Designed syllabus from scratch. Topics include: static pages, Internet protocols, layout, markup, event-driven asynchronous programming, deployment, security, scalability, and user experience. Projects include building complex real-time Web applications with front-end UIs and server-side APIs.
- **CS98 Senior Design & Implementation Project** (16F, 17W, 18W, 18S, 18F, 19W, 19F, 20W, 20S, 20F, 21W, 21F, 22W, 22F, 23W, 23S, 23F, 24W, 26W, 26S) – Updated project-based course for guiding teams of students to conceptualize, pitch, design, develop, and ship an impactful software engineering product. Students learn software development and design best practices as well as industry workflow standards.
- **CS66 Game Development Principles Applied In Educational/Serious Games** (pending) – Created a new course exploring the concepts and techniques involved in developing real-time 2D and 3D games, as well as the opportunities and constraints when applied to serious games in areas such as education, healthcare, scientific visualization, emergency planning, and engineering.

## ENTREPRENEURSHIP

**BrunchLabs, LLC**   https://brunchlabs.com                                     *2017 – Present*

Founder

• A Builder Collective.

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**Lovers Lane Farm, LLC**   https://loverslane.farm                             *2023 – Present*

Co-founder

• Cooperative community space and peony farm.

**Zingweb, LLC**   https://zingweb.com                                          *1998 – Present*

Sole Proprietor

• Consulting (2018 – Present).
• Game Development (2011 – 2018): educational/learning games for mobile platforms. Built and published a chess based action game: chessinvaders. Unity3D, Maya, C#, iOS, Obj-C.
• Web Development (1998 – 1999): design, production, hosting. Linux systems administration/consulting.

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**TellEmotion**                                                   *December 2007 – December 2008*

Lead Content Designer, Co-Founder

• Oversaw a feature development team.
• Prototyped a 3D interactive energy visualization environment.
• Used: Unity3D, Maya, SquareD electrical meters. Presented poster at SIGGRAPH 09.

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**Linklings, LLC**   https://linklings.com                                      *2002 – 2008*

Systems Engineer, Co-Founder

• Setup and managed high-availability web servers using heartbeat and DRBD to handle last minute conference submission traffic.
• MySQL administration and tuning.
• Python web application programming: conference registration and payment system.

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**Tregubov Studios**   https://tregubovstudios.com                              *1995 – 1998*

Wood Carver

• Decorative wood carving. Frames, furniture, and building trim.

## RESEARCH & CREATIVE

**Publications & Patents**

**AI-Driven Oral Examinations for Code Assessment: Evaluating Understanding Beyond the Commit**   *Feb 2026*

SIGCSE TS 2026 Lightning Talks

AI-driven interactive chat-based oral examinations as a scalable, authentic assessment tool for large CS courses, integrated into Classmoji.

### Enhancing Bloody Airway Simulation in Austere Environment by Integrating AI/AR Algorithms with Expert Feedback

*2025*

Innovation Demo – SAEM 2025

### Enhancing Bloody Airway Simulation in Austere Environments for Pre-Hospital Providers by Integrating Artificial Intelligence/Augmented Reality Algorithms With Expert Feedback

*2026*

Presentation – SOMA 2026

### Tarsier Goggles: A Virtual Reality Tool for Experiencing the Optics of a Dark-Adapted Primate Visual System

*2019*

Paper – Evolution: Education and Outreach

A virtual reality learning environment demonstrating the optical and selective advantages of hyperenlarged eyes for nocturnal visual predation.

### FrameShift: Shift Your Attention, Shift the Story

*August 2015*

Talk – ACM SIGGRAPH

A novel framework for graphic storytelling using reader attention, as measured by eye gaze fixation, to introduce subtle narrative changes.

### GreenLite: Unplug, or the Polar Bear Gets It!

*August 2009*

Poster – ACM SIGGRAPH

### System and Method for Realtime Monitoring of Resource Consumption and Interface for the Same

*April 2009*

Patent – US 2009/0319,905

A system for real-time monitoring of resource consumption, displaying consumption in emotionally legible forms.

### Warm Data, Cool Earth or Unplug to Keep the Polar Bear Happy

*Nov 2008*

Poster – AASHE 2008

## Projects

### Classmoji – https://classmoji.io

*2023 – present*

Open Source Platform

An open source platform that helps CS educators focus on teaching, not tooling, by streamlining repository management, TA coordination, and qualitative student feedback.

### AR Airway Simulation & Education

*2023–*

Research Study – AR Application

Novel Model for Airway Simulation and Education: Augmented Reality for Difficult Airway Simulation with Immediate Virtual Feedback Study.

### Smart Microscope UI Study

*2023–*

Research Study – UI/UX

The Effect of User Interface on Diagnosis: Comparing Mouse-Based Navigation, Conventional Microscopy, and a Tactile Digital Diagnostic Platform.

### Coursera MOOC: FullStack Web Development

*2023–*

Online Course – MOOC

Full stack web development course on Coursera.

### GARB

*2019 – present*

Open Source Project

A Gaze-Aware Reading-aid for the Browser.

### Anivision – https://anivision.dali.dartmouth.edu

*2020*

VR Game

A virtual reality platform to explore and compare the worldviews of animals.

### Foldlings – Sketch-Based Interface for Intuitive PopUp Card Design

*2014*

iPad App

A sketch based tool for designing paper popup cards.

### Framework for Protein Search and Visualization in PyMol
*2015*

**Research Tool**
Server/Client framework connecting PyMol to commandline protein search interface.

### Holocaust Museum: Early Warning Project
*2013*

**Web Application**
Developed site showing statistical models predicting risk for genocides worldwide.

### ChessInvaders
*2013*

**iOS App**
Published iOS App for learning chess moves in an intuitive action paced game.

### Greenlite Dartmouth
*2009*

**Web Application**
Energy use visualization system deployed in Dartmouth dorms.

### Virtual 3D Dartmouth
*2007*

**3D Modeling – Google Earth**
Design and build of a 3D Virtual Dartmouth campus for the Google Earth "build your campus in 3D" competition.

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## SYSTEMS & ENGINEERING

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### Computer Science Department, Dartmouth College
*2001 – 2014*

**Senior HPC Systems Administrator**

- Design/build/configure/maintain the high-performance linux research compute environment (through several iterations). Most recently: 1200+ core Dell blade cluster, 10GbE and FDR IB backplanes, CentOS/Rocks with Grid Engine (adding Maui), 288TB Lustre distributed filesystem.
- Linux network administration (70+ linux servers and workstations): Automation – initiated and redesigned configuration management using salt+python+git. Responsible for security patching and firewalling. Management and configuration of shared webservices, dept network services, git/svn/trac, wiki farm, issue tracking, departmental printing, and high-availability services with heartbeat/pacemaker and DRBD.
- OS X environment: Management/configuration of netboot lab image deployment.
- Computer science research support including: parallel matlab, experiment design, programming environments/tools, and good practices.
- Occasional Maya instructor.

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### docHarbor
*1999 – 2000*

**Application Engineer**

- Pre-Sales technical consultation and product development.
- Data-processing application programming technical team lead.
- IIS, Sybase, Oracle, Rex, Postscript, AFP, Xerox MetaCode.

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## EDUCATION

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### Dartmouth College
*2013 – 2015*

**Master of Science (MS), Computer Science with a concentration in Digital Arts**

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### Dartmouth College
*2005 – 2011*

**B.A., cum laude, Cognitive Science, Computer Science, Digital Arts**

- Activities: Greenlite Dartmouth, Google 3DCampus, CSFAM, John G. Kemeny Computing Prize '09. Worked full-time through degree.

## MENTORING & ADVISING

### DALI Students
*Spring 2013 – Present*

Mentor 120+ DALI students per term working in teams to create software products to solve real-world problems. Full DALI student listing available.

**Selected Advisees**

Selena Zou '26 – senior honors thesis
Sonia Bendre '25 – independent study
Aneesh Patniak '25 – independent study
Ryan Kim '25 – independent study
Aarnav Agarwal '24 – independent study
Emily Zhou '23 – independent study
Donia Tung '22 – independent study
Ian Hou '22 – independent study
Xiaoyi Wu '22 – presidential scholars, GARB
Nina Paripovic '22 – independent study
Adam McQuilkin '22 – independent study, thesis
Thomas Monfre '21 – presidential scholars
Henry Foster '21 – independent study
Anne Bailey '21 – independent study
Ayan Agarwal '21 – startup scaling
Kristie Chow '20 – research
Trevor Glasgow '20 – independent study
Samuel Schiff '20 – independent study
Ahsan Azim '18/MS '19 – honors thesis, MS research
Alex Petros '19 – thesis
Teddy Ni '19 – senior honors thesis
Christ Bertasi '19 – research
Emma Kennelly '19 – research
Barry Yang '18/MS '19 – research
John Kotz '19 – independent study
Annie Ke '19 – research
Jessie Anderson '18 – research
Virginia Cook '18 – senior honors thesis
Sydni Topper '18 – research
Elena Horton '18 – research
Jason Feng '17 – senior thesis
Danielle Gnibus '17 – senior thesis
Benjamin P. Packer '17 – senior honors thesis
Grace Miller '17 – research
Kyle Dotterrer '17 – research
Kiko Lam, MS/DA '15 – masters research

Bo Kim '26 – senior honors thesis
Dara Casey '25 – independent study
Alexander Huang-Menders '25 – independent study
Isabella Hochschild '25 – senior honors thesis
Emilie Hopkinson D'23/G'24 – masters thesis
Ziray Hao '22 – independent study, game dev
Sanjana Goli '22 – independent study
Gillian Yue '22 – independent study
Ray Crist '22 – independent study
Will McCall '22 – independent study
Barkin Cavdaroglu '22 – senior honors thesis
Eitan Vilker '21 – independent study, game dev
Ashley Song '21 – independent study
Shreyas Agnihotri '21 – cloud computing
Yakoob Khan '21 – data-intensive systems
Sofia Stanescu-Bellu '20 – senior honors thesis
Amy Guan '20 – independent study
Steven Chun '19 – presidential scholar research
Lillian Zhao '19 – stamps scholar research
Isabel Hurley '19 – thesis
Andy Bando-Hess '19 – research
Isaac Gluck '19 – research
Robert Livaudais '19 – research
Jane Lee '19 – independent study
Devina Kumar '18/MS '19 – research
Robin Jayaswal '18 – research
Ian Bateman '18 – presidential scholar research
Imanol Avendano '18 – research
Kyra Maxwell '18 – research
Juan Torres '17/MS '18 – research, game dev
Sidney Wijngaarde '17 – senior thesis
Kevin Donahoe '17 – senior thesis
Zachary Tannenbaum '17 – research
Shelley Garg '17 – research
Armin Mahban '17 – research

**Projects and Companies**

Provide product and architecture guidance to ventures and projects emerging from DALI.

## FUNDING

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|---|---|---|
| Levelup Strength (PI) | **$15,000** | *2026* |
| DALI-VT Retain (PI) | **$42,000** | *2025–2026* |
| BRIC Space Systems (PI) | **$60,000** | *2025* |
| AI Patient Actor (PI) | **$40,000** | *2025–present* |
| Zebra MD (PI) | **$36,000** | *2025–* |
| Benchify (PI) | **$32,000** | *2025* |
| How Do I Look (PI) | **$18,000** | *2025* |
| Connecting Baltimore (PI) | **$17,000** | *2025* |
| NPS-TidePool v2 (PI) | **$10,000** | *2025* |
| Survival Story (PI) | **$10,000** | *2025* |
| Augmented Reality Airway Intubation Simulation (PI) | **$50,000** | *2024* |
| NPS-TidePool (PI) | **$30,000** | *2023–* |
| ConferenceCup (PI) | **$15,000** | *January 2023* |
| Coursera FullStack MOOC (PI) | **$110,000** | *January 2022* |
| Smart Microscope (PI) | **$60,000** | *2022–2023* |
| mGame (PI) | **$45,000** | *2022–2023* |
| Bayes EM (PI) | **$30,000** | *September 2022* |

Dalí Museum Interactive Digital Experience (PI)  **$65,000**  *through March 2022*
Earthshift (PI)  **$10,000**  *January 2022*
Advantage Capital Management (PI)  **$14,000**  *December 2021*
DH PeerTECH 2.0.1 (PI)  **$10,000**  *December 2021*
Rooted Farmers (PI)  **$10,000**  *March 2021*
BetMate (PI)  **$10,000**  *March 2021*
Prizering (PI)  **$5,000**  *March 2021*
Potentia (PI)  **$10,000**  *through March 2021*
6AM Health Grant extensions (PI)  **$20,000**  *through July 2020*
PeerTech Grant (PI)  **$10,000**  *through Dec 2020*
Rooted Grant (PI)  **$10,000**  *through Dec 2020*
Whiteboard (PI)  **$10,000**  *through July 2020*
Worthee Grant (PI)  **$10,000**  *through July 2020*
Mavis-Tire Grant (PI)  **$10,000**  *through July 2020*
Keepler (PI)  **$15,000**  *through June 2020*
NHPR Civics 101 (PI)  **$7,500**  *through Sept 2020*
PeerTECH 2.0 (PI)  **$7,500**  *through March 2020*
Dartmouth Open Education Initiative (PI)  **$2,000**  *through July 2020*
NSF DIFUSE – "Infusing Data Science into Undergraduate STEM Education" (Senior Personnel)  **$2,791,391**  *Oct 2019 – Sept 2023*
DALI Amazon Alexa Grant (co-PI)  **$25,000**  *through August 2019*
Chuzqo (PI)  **$7,500**  *through Sept 2019*
DCAL Experiential Learning Mini-Grant (PI)  **$5,000**  *through Dec 2019*
NSBRI NSPIRES – "Autonomous behavioral health countermeasures for spaceflight" (Senior Personnel)  **$1.4M**  *through June 2017*
Neukom Institute DALI Seed Funding (PI)  **$300,000**  *April 2013 – April 2015*
NSF CISE – "II-EN: GridIron" (Senior Personnel)  **$474,888**  *June 2012 – May 2017*