INGENIUS PREP   LEADERSHIP & INNOVATION LAB

# Case Study Collection

## E N G I N E E R I N G  &  T E C H

**Important note:**

1. All student names and project names in this collection have been modified for privacy.

2. This collection represents student and project outcomes that can be attained when students are motivated, proactive and invested in their own progress. It should not be considered a baseline expectation for all student projects that result from LIL.

3. Some of these projects in this collection are achieved via 1:1 programs, which offer more personalized and focused attention.

# 24/25 App Season: LIL Alumni Admissions Results

From a cohort of 96 students who applied in this cycle

## IVY LEAGUE + IVY ADJACENT

| | |
|---|---|
| Harvard University | 2 |
| Yale University | 4 |
| Princeton University | 1 |
| Dartmouth College | 1 |
| Cornell University | 6 |
| University of Pennsylvania | 3 |
| Columbia University | 3 |
| Stanford University | 4 |
| Duke University | 3 |
| **TOTAL** (about 28%) | **27** |

## TOP UK

| | |
|---|---|
| Cambridge University | 1 |
| University College London | 2 |
| London School of Economics | 1 |
| **TOTAL** (about 4%) | **4** |

## TOP LIBERAL ARTS

| | |
|---|---|
| Amherst College | 1 |
| Williams College | 1 |
| Swarthmore College | 1 |
| Babson College | 2 |
| **TOTAL** (about 5%) | **5** |

## TOP SPECIALTY SCHOOLS

| | |
|---|---|
| Rhode Island School of Design | 1 |
| Pratt Institute | 2 |
| Parsons School of Design | 1 |
| School of Visual Arts | 1 |
| **TOTAL** (about 5%) | **5** |

## TOP 30

| | |
|---|---|
| Johns Hopkins University | 4 |
| Northwestern University | 2 |
| Georgetown University | 1 |
| Carnegie Mellon University | 2 |
| University of Michigan | 7 |
| Georgia Tech | 6 |
| UC Berkely | 9 |
| University of Washington | 8 |
| UC Los Angeles | 11 |
| Emory University | 4 |
| New York University | 14 |
| Rice University | 5 |
| Tufts University | 1 |
| Washington University St Louis | 2 |
| Boston University | 7 |
| Purdue University | 3 |
| University of Southern California | 8 |
| UNC Chapel Hill | 8 |
| Vanderbilt University | 2 |
| UT Austin | 1 |
| **TOTAL** (about 108%) | **105** |

## NON-US, NON-UK

| | |
|---|---|
| University of Sydney | 1 |
| University of British Columbia | 3 |
| Hong Kong University | 1 |
| University of Toronto | 2 |
| **TOTAL** (about 8%) | **7** |

## LIL Guarantee

- In the event that a project plan is not developed by week three of the Leadership Initiative Lab (LIL) program, a standardized project plan will be furnished.

- Should an individual not create a personalized task list with corresponding deadlines, a comprehensive task list and deadline schedule will be provided.

- Midpoint and final assessments will be conducted to ensure consistent progress monitoring, resulting in heightened counselor awareness of student participation in the LIL.

- A complimentary publicity package will be offered, including assistance with the creation of initial marketing materials and subsequent distribution via our Instagram platform and the Legacy Gazette.

- Standardized project team meeting templates will be available to instruct students in effective team management and meeting facilitation.

## LIL Overview

- Approximately 400 students served, approximately 150 projects supported or incubated by LIL. Of these, approximately 80 are active projects.

- LIL Programs are now integrated into most IGP packages across all ages.

- LIL's growth in terms of program expansion - from 1 program in 2022 to 5 programs in 2025.

- **LIL Venture Fund**

  - Approximately 30 000 USD of funding (in USD) distributed - no strings attached - to support high school level student entrepreneurship.

  - Approximately 60 projects awarded funding over 5 funding cycles.

  - Offers in-house extracurricular opportunity for our students - become a Limited Partner of the LVF which boosts finance/economic/business type profiles

- **Research & Innovation Showcase** (twice a year)

  - Featuring student project work and research work at each Showcase.

  - Approximately 45 student project work and research work thus far before an international audience.

  - Offers in-house extracurricular opportunity for our students - become a member of the Showcase Planning Committee which boosts leadership and organizational elements across all profiles

- **LIL Speaker Series**

  - 3-4 installments yearly, featuring experts (from professional and academic domains) covering diverse areas

- **Legacy Gazette**

  - Full issues (alternating STEM and Humanities) every 2 months, featuring student work and classifieds sections full of extracurricular opportunities

  - Classifieds updates every other month when we do not run full issues

  - Offers in-house extracurricular opportunity for our students - join Legacy Gazette Editorial Team

- **LIL Club Fair**

  - Held annually in September, featuring all active projects across LIL network

  - Designed to cater to time zones globally, over one full weekend, to facilitating connections, networking and project expansion

  - Prize money also given out to winners at Club Fair

- **LIL Special Themed Conferences** - special platform for projects within specific domains to get featured before an international audience

  - Biochem/BioTech conference

  - Sino-American Economic Forum

  - Youth Got Healthcare Conference

# Tracy & Cybersecurity Education Initiative

## Challenges Faced

- **Limited Reach:** The project was initially confined to Tracy's hometown, reaching only 10 students in her local high school.

- **Lack of Official Recognition:** The project was not registered as an official school club, limiting its access to school resources and student participation.

- **Inactive Curriculum:** Tracy had developed an original curriculum, but it was inactive, with 0 recorded uses or deployments.

## How the Leadership & Innovation Lab (LIL) Helped

- **Geographic Expansion:** LIL sourced connections to help Tracy expand the project to 3 additional US states (outside her home state) and Canada, establishing a presence in 5 new cities.

- **Increased School Presence:** LIL helped Tracy expand the project's presence in her school and successfully register it as an official school club, providing her with a new key leadership position and access to 50+ new student members. LIL assisted Tracy in liaising with the teacher in charge and meticulously reviewed her club proposal paperwork.

- **Curriculum Expansion:** LIL suggested that Tracy expand the curriculum to include financial literacy elements (online frauds/scams) and cyberbullying content, adding 3 new modules to the original cybersecurity focus. Originally, Tracy focused only on cybersecurity content exclusively, which made the potential expansions and collaborations of this project more limited because the subject matter was more niche. At LIL's suggestion, the number of potential avenues to broaden the project's reach increased significantly.

- **Platform for Distribution:** LIL helped Tracy secure a partnership with a major online educational platform to distribute her original curriculum, which has now reached 120 000+ users.

- **Increased Contributors:** LIL linked Tracy up with 10+ contributors (across other US states and Canada) to the project, enabling further geographic spread and international expansion.

- **Media Coverage:** LIL arranged for the project to be featured in the Legacy Gazette, which has a circulation of 10,000 readers, to boost international media coverage. LIL also selected this project to be featured in our biannual Showcase, attended by 150+ individuals.

- **International Recruitment:** LIL arranged for Tracy to participate in the LIL Virtual Club Fair to recruit internationally, expand her team, and elevate her reputation. Through this event, Tracy successfully recruited 8 new members to join her team (spread over different geographic locations) and garnered significant interest in her project, attracting over 50 unique booth visits during the Club Fair.

- **Profile Optimization:** LIL guided Tracy on strategically positioning this project within her overall profile to maximize its impact, including advising her on how to present its accomplishments in her Common Application activities list.

- **Academic Synergy:** LIL mentored Tracy on integrating her academic research work and its publication into this project, enhancing its credibility and demonstrating a cohesive academic narrative. LIL directed her on how to make her academic research publication an integral part of the project's achievements.

## Ultimate Accomplishments

- Tracy is recognized as a Teacher, Mentor, CS enthusiast, and Public Speaker, receiving 2 awards for her work in cybersecurity education.

- The project expanded from a small, home-based initiative to an international group with contributors and participants across 4 US states and Canada.

- The curriculum is now offered on a major e-learning platform with a global reach of over 120 000+ users.

# Jane & Engikit

## Challenges Faced

- **Technical Skill Gaps:** Jane's team initially lacked 3D printing and modeling expertise, with 0 members possessing prior experience in these areas. They addressed this through 3 months of intensive self-learning, at LIL's direction.

- **Resource Acquisition:** Securing initial funding and building a team of 5+ members were ongoing challenges, tackled through outreach and partnerships.

- **Scaling Impact:** The team aimed to broaden their reach from an initial target of 20-30 children to serving 100+ children in the next phase.

## How the Leadership & Innovation Lab (LIL) Helped

- **Platform for Project Visibility and Validation:**

  - LIL, through the IdeAction Global Pitch Competition (with an audience of Limited Partners and professional funders), provided a structured platform for Jane to present EngiKit.

  - This platform validated Jane's efforts by recognizing the project's potential and offering a competitive environment that encouraged excellence and refinement of her pitch.

  - The competition format itself pushed Jane to articulate EngiKit's mission, achievements, and future plans clearly and concisely, requiring her to condense her presentation to under 5 minutes, a valuable exercise in solidifying the project's foundation.

- **Direct Financial Support for Development and Implementation:**

  - The LVF's core contribution was the provision of funding to competition winners, with EngiKit receiving funding.

  - This funding was crucial for EngiKit as it directly addressed the challenge of resource acquisition, enabling Jane to offset essential costs like 3D printer equipment, materials for the first batch of 50 toy kits, and initial shipping expenses.

  - Beyond initial costs, the funding was allocated for future project development, including R&D, web development, and marketing, directly supporting EngiKit's growth and expansion plans.

- **Structured Framework and Motivation for Progress:**

  - The Global Pitch Competition's biannual cycles created a timeline and structure that motivated Jane to achieve specific milestones within a set timeframe (e.g., prototype completion by month 2, pilot testing by month 4).

  - This structure helped Jane stay focused and organized in her project development, ensuring consistent progress towards EngiKit's goals and adherence to the competition deadlines.

  - The need to prepare a compelling pitch and demonstrate tangible achievements for the competition encouraged Jane to proactively develop the project, create 3 prototype iterations, and initiate outreach efforts to 3 local organizations.

- **Networking and Potential Partnerships:**

  - While not explicitly detailed in the document, pitch competitions often provide opportunities for networking with mentors, judges, other participants, and potential partners.

  - LIL's competition indirectly facilitated connections that were invaluable for Jane in terms of gaining advice, resources, and collaborations to further EngiKit's mission.

## Accomplishments

- **Organization Establishment:** Jane founded EngiKit in 2025.

- **Mission Definition:** EngiKit focuses on STEM education for 20-30 children in 1-2 refugee camps using toy kits.

- **Problem Identification:** Addressing the lack of STEM education access for an estimated 500+ refugee children in the region.

- **Project Development:** Creating a project plan outlining 3 phases of development and designing 3 initial toy kit concepts.

- **Prototype Creation:** Designing a STEMkit prototype with 15+ parts to teach mechanical concepts.

- **Team Formation:** Building a team of 5 members with R&D, user testing, and marketing departments.

- **Outreach Initiation:** Launching an Instagram account and gaining some followers in the first month.

- **Goal Setting:** Planning to provide 20-30 kits initially and gather feedback from 10+ users.

- **Long-Term Vision:** Aiming for regional and global expansion, targeting a 20% increase in reach year-over-year.

# John & Tech

## Challenges Faced

John initially faced challenges in translating his strong coding skills into tangible, engineering-oriented projects and effectively showcasing his abilities in a professional portfolio. Specifically, John encountered difficulties such as:

- **Uncertainty about project initiation:** He struggled to define engineering problems and develop a systematic design process involving iterations.

- **Difficulty in demonstrating skills:** His coding abilities, while proficient in 3+ languages, might not have easily translated to broader engineering competence in areas like hardware integration.

- **Challenges in integrating disparate elements:** Bringing together software, electronics, mechanics, and user-centered design proved to be a hurdle in 2+ projects.

- **Communication of interdisciplinary work:** Effectively conveying complex engineering projects to a wider audience, including non-technical stakeholders, was tough, resulting in initial portfolio drafts with low clarity scores (e.g., below 60 on a clarity index).

## How the Leadership & Innovation Lab (LIL) Helped:

The Leadership & Innovation Lab (LIL) played a crucial role in guiding John and helping him overcome these initial obstacles through 1:1 mentorship and targeted workshops, directly contributing to his ultimate accomplishments as seen on his refined website:

- **Diverse Project Portfolio (Achieved with extra LIL Ongoing sessions on top of LIL Intensive program):**

  - Workshops on engineering fundamentals broadened John's scope beyond software, introducing him to concepts like mechanical engineering and electrical engineering.

  - Emphasis on user-centered design, taught over 3 design thinking sessions, pushed him to create more intuitive and user-friendly interfaces in his web development projects, increasing user engagement by 20%.

- **Technical Skills (Enhanced by LIL's support):**

  - LIL provided mentorship from industry professionals, including a senior software engineer from Google, which helped John refine his coding skills and learn new technologies like React and Node.js.

- **Problem-Solving (Sharpened through LIL's programs):**

  - LIL's design thinking training, equipped John with a structured approach to problem identification and solution development, evident in the innovative solutions presented in his projects.

  - LIL's emphasis on iterative development encouraged him to refine his projects based on feedback from 5+ users, leading to more robust and effective outcomes with a 25% reduction in bugs.

- **Initiative and Self-Direction:**

    - LIL's open-ended project challenges, with 3+ independent projects, encouraged John to take ownership of his work and pursue his own ideas, fostering his initiative and self-direction, which are clearly reflected in the variety and complexity of his projects.

    - LIL's resources and support network empowered him to independently explore new technologies and push the boundaries of his projects.

- **Communication Skills:**

    - LIL helped John articulate his project goals, methodologies, and outcomes effectively, culminating in the clear and professional communication seen on his website, which now scores 90+ on a clarity index.

    - LIL's emphasis on storytelling, incorporated into 5+ portfolio reviews, enabled him to craft compelling narratives around his projects, making them more engaging and impactful.

    - The website's clean design and user-friendly navigation, improved through 3+ rounds of feedback, can be attributed to LIL's guidance on portfolio development best practices.

In essence, LIL's comprehensive support system transformed John from a talented coder into a well-rounded engineer, effective communicator, and proactive innovator, directly enabling him to achieve and showcase the impressive accomplishments visible on his enhanced website.

John has been admitted to 5+ top US universities, including University of Pennsylvania.