

Would I Hire My Own Graduates?

Innovation-First Learning for **Job-Ready** CS Graduates in the **AI Era**

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Motivation

- I joined HIT in 2024 to focus on teaching and research
 - After 30+ years in concurrent academia/industry/teaching tracks
- Currently teaching electives
 - LLM and Agents, Deep Generative Models (for Vision and Audio)
 - Multiple programs, institutions: CS/Digital Health, HIT/BIU, BSc/MSc, Zoom, and F2F
- The syllabus and teaching approach is designed around a simple objective
 - Would I hire these graduates for my own team?
 - Would I trust them to contribute to my research?

30+ Years on Parallel Tracks

Watching a Growing
Disconnect

- **Academy:** what I studied and how I taught
 - Technion/Weizmann/TAU: classical CS training
 - Teaching CS courses: 15+ years of conventional CS syllabus
 - Student supervision: Dozens of BSc/MSc finals
- **Industry:** what I did and what I was paid for
 - Roles: From Algo/SW Developer to VP R&D/CTO, AI Head/VP
 - Companies: startups, medium, corporations
 - Team building: interviewed hundreds, hired dozens
 - Real-life hands-on: coding systems, recently vibe-coding

AI has widened the gap.

How can we reconnect **without compromising
either side?**

Software Engineering: Past vs. Future

Past	AI-dominated future
Solving customized standard tasks (textbook tasks with a twist)	Build sophisticated new stuff (offload standard tasks to AI)
Large team with narrow specializations (algo/software separation)	Build complete systems single-handedly (equipped with AI)
Develop deep expertise through complete knowledge of a single tech stack	Perform under uncertainty/partial knowledge (things change fast, the expectations are too high)
Separation between why (business), what (product) and how (engineers)	Integrative engineering, communications and product thinking

How to teach for tomorrow's skills?

My approach: **Innovation-First Learning**

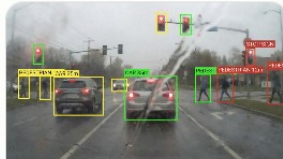
Center the course around student **projects**

- Project must have significant **novel** elements, not a customized standard exercise
- Project should be technically **deep/sophisticated**, with many design choices
- Students should start executing and presenting project **during the course**, not at the course end
- Students should perform **incremental** improvement based on **continuous** instructor **feedback**
- Course's final delivery is a **demonstratable portfolio project** (GitHub repo with detailed README)
- Train students for **technical communications**: reason, explain, and present

Requires **significant adaptation** of a conventional course syllabus

- Introduce many concepts **earlier, revisit later** for depth
- Integrate **tools/code with theory** at every step
- Teach a **comprehensive toolbox** of **state-of-the-art** concepts and tools
- Multiple in-class **student presentations** and **feedback** sessions (proposal, mid, final)
- Equip students with **tools/references** (project examples, up-to-date textbook, **AI bot**)
- **Encourage reuse and AI** use with clear **constraints** (novelty + 100% ownership)

2025-2026: Over 100 student projects

Avraham Linoy, Yunon Zruk, Boaz Atiya GitHub  2025 VISION AI BUILT IN Deep Generative Models A vision- and geometry-based system that compares two versions of the same floor plans to identify structural changes. Liran Aichnboim, Afik Aharon, Adi Haim GitHub	Sason, Dvir Manos, Inbal Bolshinsky GitHub  2025 VISION AI Zoom Behavior Insight Deep Generative Models A video-only analytics system that monitors student behavior during remote Zoom-style sessions by interpreting visual cues. Ofir Duek, Rotem Aloni, Aviv Meir GitHub	Akshikar GitHub  2025 VISION AI BioChem CropShield Deep Generative Models A vision-based diagnostic system that analyzes leaf and plant imagery to distinguish between chemical treatments. Adir Boccara, Aharoni Cohen, Eden Charkachi GitHub	Sam Sotil, Eliya Zakay, Shalev Atsis GitHub  2025 VISION AI HelmetGuard Deep Generative Models A video-based safety monitoring system that automatically detects construction workers who are not wearing protective helmets. Dan Kuenkas, Nadav Golche GitHub
 2025 VISION AI ChildSafe Vision Deep Generative Models A vision-based system that detects objects in a child's environment that may pose safety risks, such as small toys or sharp objects.	 2025 VISION AI ClearSight ADAS Deep Generative Models A vision-based ADAS module that maintains reliable object detection even when mud, dust, rain droplets, snow, or fog obscure the view.	 2025 VISION AI RunwayGuard Vision Deep Generative Models A vision-based system that detects foreign objects and surface contamination on airport runways, including debris, oil, and potholes.	 2025 VISION AI ScreenLine Inspector Deep Generative Models A vision-based inspection system for TV production lines that identifies physical defects such as dust, scratches, and dead pixels.

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A benchmark for evaluating diagnostic questioning efficiency of LLMs in patient conversations

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IEEE Access

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Digital Object Identifier 10.1109/ACCESS.2024.Doi Number

SeaAlert: Robust Severity Classification and LLM-Based Information Extraction for Noisy Maritime Distress Communications

Reading Between the Lines: Classifying Resume Seniority with Large Language Models

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Major Takeaways: Innovation-First Learning

- **Skills in demand**

- A **one-man army** engineer equipped with **AI**
- Perform under **uncertainty, partial knowledge**, and high expectations

- **What to teach**

- **Rich toolbox** of **integrated** theoretical concepts and tools/platforms
- How to **build sophisticated new stuff quickly** with reuse and AI-offloading

- **How to teach**

- **Integrate** theory/code/tools/applications during the class
- **Spiral** introduction of complex concepts for **early project start**
- **Running** student **projects** with **continuous feedback**
- Require significant **value, novelty, and depth** of the project
- Encouraging AI and **reuse** while taking 100% **ownership**

Useful links

Innovation-First Learning Methodology	https://www.apartsin.com/work/innovation-first-learning.html
Student Course Projects	https://www.apartsin.com/teaching/hands-on-ai-science-courses-student-projects.html
Project assistant AI bots	https://www.apartsin.com/teaching/course-bots.html
Online textbooks	https://www.apartsin.com/writing/books-overview.html
Essays on AI in education and AI-driven software engineering	https://www.apartsin.com/writing/blog-posts.html
Graduate Readiness profiles	https://www.apartsin.com/assets/teaching/curriculum-development/grp-ai-engineer.pdf https://www.apartsin.com/assets/teaching/curriculum-development/grp-fullstack-dev.pdf
Student Guides	https://www.apartsin.com/teaching/guides/index.html
Elective design principles	https://www.apartsin.com/teaching/advanced-cs-elective-framework.html