

# Intro & Vibe Coding Activity

17-316/616 Fall 2025

AI Tools for Software Development

<https://ai-developer-tools.github.io>

Austin Henley and Andrew Begel

# Austin Henley

- Associate Teaching Professor in S3D
- CTO and VP of Engr at startups
- Researcher at Microsoft
- Assistant Professor at University of Tennessee
- [www.austinhenley.com](http://www.austinhenley.com)
- Read my blog if you are bored 😊



# Andrew Begel

- Associate Professor in S3D
- 16.5 years at Microsoft Research
- PhD at UC Berkeley



- Web: [andrewbegel.com](http://andrewbegel.com)
- Lab: [cmu-variability.github.io](https://cmu-variability.github.io)
- Google: "Andrew Begel"



# Motivation

- We want you to try out different AI tools to see what you like and what they are good for
- Teach you to be AI-enhanced software developer
- Job market for junior developers... Could AI help you go from junior to senior
- This is a new world: We are learning this together

Pinned



**Thomas Dohmke**   @ashtom · 22h




The evidence is clear: Either you embrace AI, or get out of this career.

Our latest field study with 22 developers who are integrating AI deeply into their workflows reveals a striking trend: those who persist beyond early skepticism emerge with dramatically higher ambition,

[Show more](#)

 93

 241

 1.3K

 193K



**Thomas Dohmke**   @ashtom · Jul 12



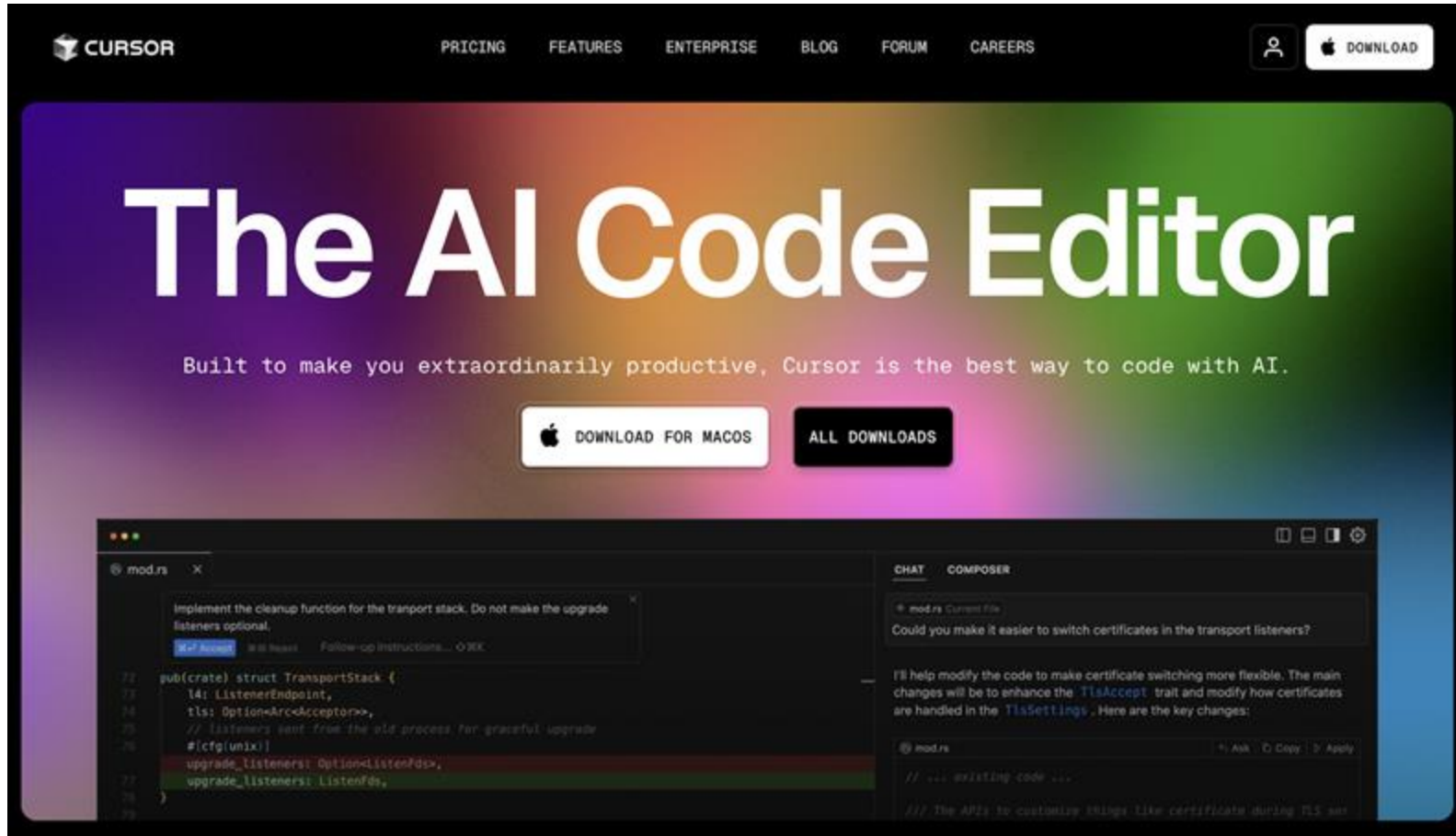
Coding isn't dead – it's reborn. So the way we teach is changing accordingly. Or, as [@UW](#) professor Magda Balazinska puts it: “We have never graduated coders. We have always graduated software engineers.” ✨





# Lean into vibe coding?





# Course structure

- Learn how to use AI developer tools throughout the development process
- Lectures
- In-class programming activities
- In-class presentations and discussions
- Homework: Reflections
- Homework: Readings
- Group project



# Two-week cycle

- Monday 1: Pair programming activity
- Wednesday 1: Team meeting, mini-lecture, mob programming activity
- Homework: Reflection essay
- Monday 2: Team meeting, mini-lecture, mob programming activity
- Wednesday 2: Presentations and discussions
- Group project: Two-week sprint milestones

# Grading

- 46% in-class activities
  - Team meeting participation
  - Presentations and discussions
  - Programming activities
- 42% course project
  - 6 milestones
  - Final presentation
- 12% homework reflection essays
  - 6 essays (one every two weeks)

# Logistics

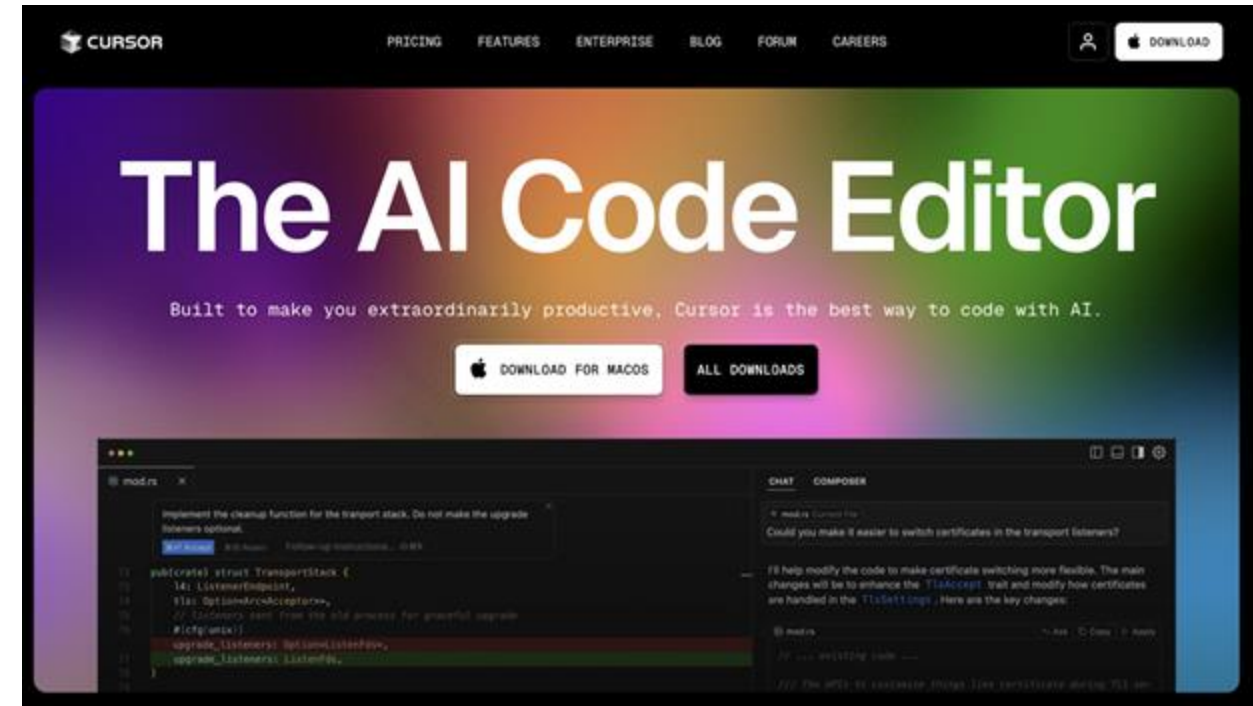
- Canvas (<https://canvas.cmu.edu/courses/49386>)
- Course website (<http://ai-developer-tools.github.io>)
- Slack (<https://aidevelopertools.slack.com/>)
  - Find the invite link on Canvas Announcements
  - Introduce yourself by end of class in #introductions
  - Year and degree program?
  - Why are you interested in taking this class?
  - What AI tools have you been using and what have you used them for?

# Office Hours

- Andrew Begel
  - In-person TCS 441
  - Every Tuesday 2-3pm
- Austin Henley
  - In-person TCS 445
  - Every Thursday 2-3pm (\*may change soon)

# Cursor setup

- <https://cursor.com>
- Make free Cursor account
- Download and install Cursor



# Activity: Vibe coding a new project

- We are going to use Cursor to “vibe code” a project from scratch
- Work individually (feel free to talk or ask questions)
- **Rely on the AI as much as possible**
- Don't write any code yourself... that is what the AI is for!
- Cursor can help you setup your dev environment too



# Project: Single-User Instagram

- Next.js web app
- Sqlite Database
- Deploy locally
- Required features:
  - Upload pictures
  - See a feed of uploaded pictures, sorted chronologically
  - App must have a logo you create (with AI!)
- Prize!!! Fastest to finish 😊

How did it go?

# Project: Multi-User Instagram

- Additional features:
  - User registration and login
  - Profile page with follow feature
  - Feed only shows users you're following
  - Landing page to show off app
- Prize!!! Fastest to finish 😊

How did it go?

# Homework: Reflection

- Reflection: 500-word essay answering specific questions based on your experience
- Solo assignment and will present as a group later
- No AI usage for writing!!!
- Sign up today (link in Slack)
- Due next Wednesday