



Level 0x11

Future Work



Topics

- College / Investing in Education
- Internships
- Games and Hacking

Upcoming Events

- TJ CTF (online)
 - Primarily for high school students
 - Organized by Thomas Jefferson HS for Science and Technology
- Pwn Con
 - Saturday, June 15 8am-9pm
 - 2495 Palm Bay Rd (across from L3Harris)
 - Free
 - This will be a chill event, with nerds gathering to nerd out about assembly code, software bugs and exploitation, figuring out how code works, and other cool pwn things. There will be a lot of talks, and a CTF.





Categories > U.S. Regional Data > States > Florida

All-Transactions House Price Index for Florida (FLSTHPI)

DOWNLOAD

Observation:
Q4 2023: 809.13
(+ more)
Updated: Feb 27, 2024 9:02 AM CST

Units:
Index 1980:Q1=100,
Not Seasonally Adjusted

Frequency:
Quarterly

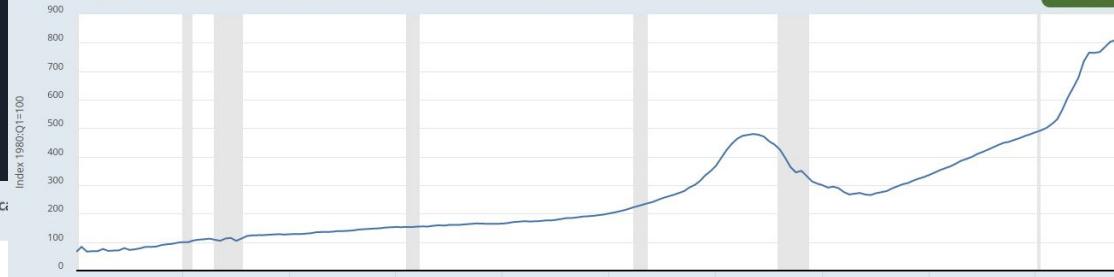
1Y | 5Y | 10Y | Max

1975-01-01 To 2023-10-01

EDIT GRAPH

FRED — All-Transactions House Price Index for Florida

VIEW MAP



FRED — Bank Prime Loan Rate Changes: Historic

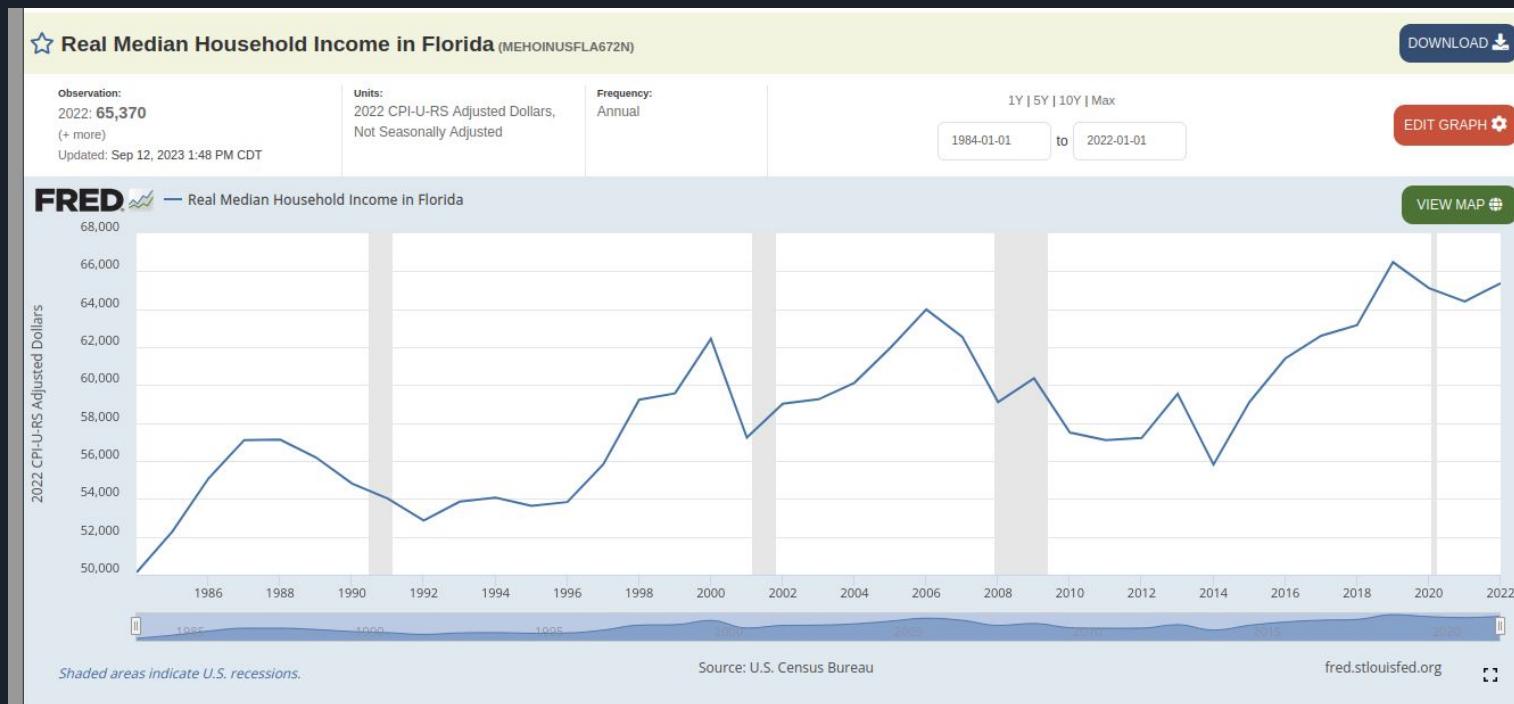




How much will a home cost?

	Pre 2017	2022 - 2024 Old Interest Rate	2024 Price and Interest Rate
Median Price Home	\$250,000	\$380,000	\$380,000
Interest Rate	4.0 %	4.0 %	8.5 %
Downpayment (10%)	\$25,000	\$38,000	\$38,000
Monthly Payment	\$1,074	\$1,633	\$2,630
Interest Paid Lifetime	\$161,706	\$245,794	\$604,686

Median Income Household Florida





Cost of Bachelor's Degree

- University of Florida
 - Undergrad: \$212 / credit. $120 * \$\underline{\hspace{2cm}} = \underline{\hspace{2cm}}$
 - Graduate: \$530 / credit. $30 * \$530 = \$15,900$
- University of Central Florida
 - Undergrad: \$212 / credit. $120 * \$\underline{\hspace{2cm}} = \underline{\hspace{2cm}}$
 - Graduate: \$369 / credit. $30 * \$369 = \$11,070$
- University of Miami
 - Undergrad: \$2,310 / credit. $120 * \$\underline{\hspace{2cm}} = \$\underline{\hspace{2cm}}$
- Florida Tech
 - Undergrad: \$21,710 / semester. $8 * \$\underline{\hspace{2cm}} = \$\underline{\hspace{2cm}}$
- Eastern Florida State College
 - AA (1000/2000 level): \$104 / credit. $60 * \$\underline{\hspace{2cm}} = \$\underline{\hspace{2cm}}$
- Books: \$\hspace{2cm} / yr
- Living Expenses: \$\hspace{2cm} / year



Cost of Bachelor's Degree

- University of Florida
 - Undergrad: \$212 / credit. $120 * \$212 = \$25,440$
 - Graduate: \$530 / credit. $30 * \$530 = \$15,900$
- University of Central Florida
 - Undergrad: \$212 / credit. $120 * \$212 = \$25,440$
 - Graduate: \$369 / credit. $30 * \$369 = \$11,070$
- University of Miami
 - Undergrad: \$2,310 / credit. $120 * \$2,310 = \$277,200$
- Florida Tech
 - Undergrad: \$21,710 / semester. $8 * \$21,710 = \$173,680$
- Eastern Florida State College
 - AA (1000/2000 level): \$104 / credit. $60 * \$104 = \$6,240$
- Books: \$1,000 / yr
- Living Expenses: \$12,000 / year



Bright Futures Scholarship

- Academic Scholarship
 - 3.50 GPA, 1330 SAT or 29 ACT
 - 100% of tuition at public university
 - \$6,350 / year
- Medallion Scholarship
 - 3.0 GPA, 1210 SAT or 25 ACT
 - 75% of tuition at public university
 - \$4,762 / year
- Lockheed Intern
 - \$22 - \$35 / hr
 - 20 hours per week, 50 weeks. $20 * \text{rate} * 50 = \$22,000 - \$35,000$
- Regular Job
 - \$15 / week
 - 20 hrs / week, 50 weeks. \$15,000

Student Loans

- Borrow money for school, pay back after you graduate (typically over 10 years)
 - Used by 70% of students, average balance is \$30K
 - $\frac{1}{3}$ of borrowers never pay off their loans
 - They are difficult to discharge via bankruptcy
- In June 2010, student loan debt exceeded credit card debt
- Hot political issue, would be risky to assume laws won't change the next few years





Considerations for College

- Be wary of following your passion - is it realistic career path?
 - You can still follow passions as hobbies!
- What skills do you have that you are good at?
- What kind of work would you enjoy?
- What do you want to avoid? What makes you miserable?
- What career opportunities / demand for those things?
- Think of education costs (and time) as an investment, what is the ROI?
- Money doesn't buy happiness, but...
 - Will ease life frustrations and stress

Payscale.com College Salary Report

Highest Paying Jobs With a Bachelor's Degree

Your major can have an even bigger impact on future earnings than choice of school. Find out which majors pay you back, and which make it hard to pay back student loans.

[Read more](#)

Search Majors 

Rank	Major	Degree Type	Early Career Pay	Mid-Career Pay	% High Meaning
1	Petroleum Engineering	Bachelors	\$93,200	\$187,300	67%
2	Operations Research & Industrial Engineering	Bachelors	\$84,800	\$170,400	28%
3	Electrical Engineering & Computer Science (EECS)	Bachelors	\$108,500	\$159,300	46%
4	Interaction Design	Bachelors	\$68,300	\$155,800	55%
5	Public Accounting	Bachelors	\$59,800	\$147,700	47%
6	Operations Research	Bachelors	\$83,500	\$147,400	54%
7	Applied Economics and Management	Bachelors	\$66,100	\$146,400	67%
8	Business Computing (BC)	Bachelors	\$73,000	\$143,600	-
9	Actuarial Mathematics	Bachelors	\$64,300	\$143,400	51%
10	Electrical Power Engineering	Bachelors	\$76,100	\$142,600	68%
11	Information & Computer Science	Bachelors	\$58,600	\$140,900	62%



Most In Demand College Majors - Kiplinger

1. Computer Engineering

- Starting salary: \$83,100
- Mid-career salary: \$135,000
- Job satisfaction: 70% (Percent who said they
- Job is stressful: 42% (Percent who said their
- Job has meaning: 46% (Percent who said "ve the world a better place?")

2. Computer Science

- Starting salary: \$79,700
- Mid Career Salary: \$130,000
- Job Provides Satisfaction: 68%
- Job is Stressful: 39%
- Job Has Meaning: 46%

3. Electrical Engineering

- Starting salary: \$77,500
- Mid Career Salary: \$123,000
- Job Provides Satisfaction: 67%
- Job is Stressful: 50%
- Job Has Meaning: 57%

4. Chemical Engineering

- Starting salary: \$77,100
- Mid Career Salary: \$130,000
- Job Provides Satisfaction: 64%
- Job is Stressful: 55%
- Job Has Meaning: 57%

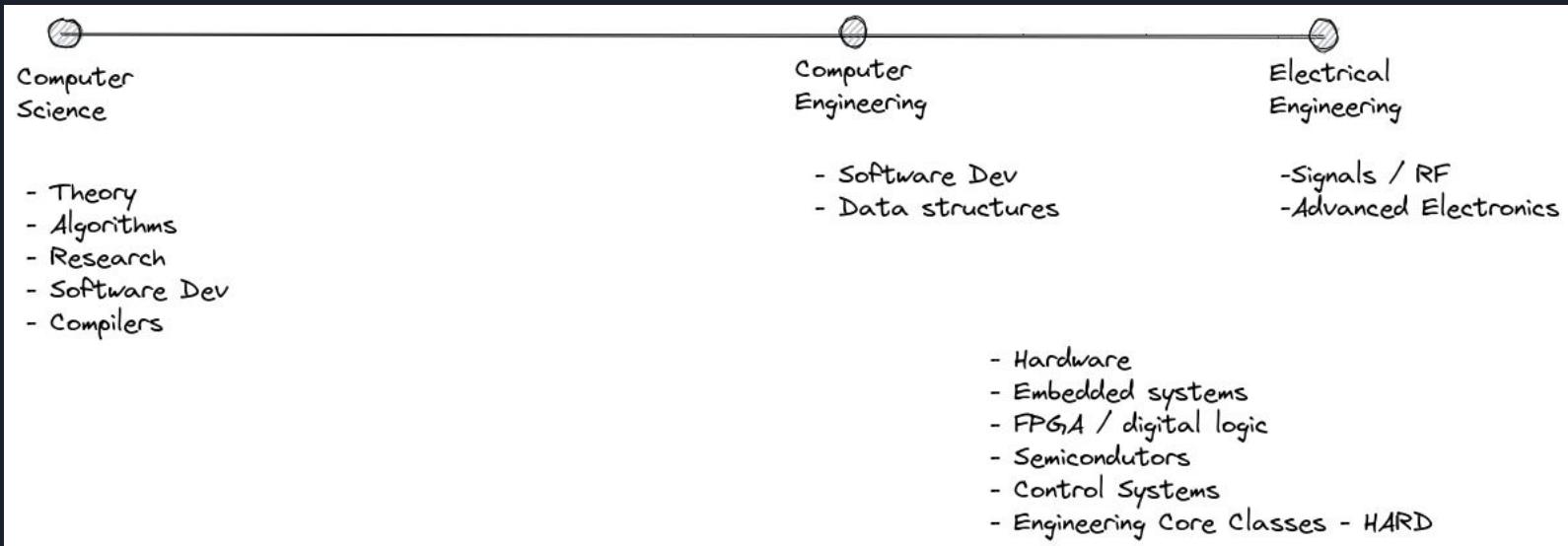
5. Aerospace Engineering

- Starting salary: \$76,400
- Mid Career Salary: \$131,000
- Job Provides Satisfaction: 66%
- Job is Stressful: 47%
- Job Has Meaning: 55%

6. Mechanical Engineering

- Starting salary: \$72,900
- Mid Career Salary: \$115,000
- Job Provides Satisfaction: 63%
- Job is Stressful: 53%
- Job Has Meaning: 51%

Which Major? CS vs CpE vs EE



Nightwing CODEX Internships

NIGHTWING



- CODEX: Cyber Offense & Defense Experts
 - Multiple disciplines: software/hardware vulnerability research, reverse engineering, software engineering
 - What we do: computer network operations, computer network exploitation development, hardware emulation, system engineering, data analytics, and test engineering
 - We work on an array of technologies, including the latest mobile platforms, operating systems, embedded devices, and the newest data analytic platforms.
- [Raytheon Career Portal](#)
 - Summer internship positions will open/appear in January each year
 - Open to college students, any level
 - Offers 1 week PTO (paid time off)
- What to study? [CODEX Learning](#)
 - Courses: Computer Architecture, OS, Networks, Crypto, Compilers
 - Languages: Python, C
 - CTFs
 - Debuggers and Binary Analysis (IDA, Ghidra, Binary Ninja)
 - Stack / heap based overflows



RIdiculously Awesome Cyber Internships

Our Cyber LOB supports Offensive Cyber Operations (OCO) missions. We solve challenging problems related to embedded-level software development, network protocols, RF interfaces, reverse engineering, vulnerability research, and computer network operations



- Why work here?
 - We create RIldiculously Awesome solutions that make the world safer.
 - Award Winning Culture - Seriously, awards were won
 - Interns receive 3 paid holidays
 - MentoRIIng you won't receive anywhere else
- What we look for in an intern:
 - US Citizen
 - Typically pursuing a degree in Computer Science, Computer Engineering, or Cyber Security
 - Experience with vulnerability research and reverse engineering through online wargames, CTF competitions, or related platforms
 - Proficiency with assembly language, C/C++, Python, and fundamentals of operating systems
- Interns are on-site:
 - Melbourne, FL
 - San Antonio, TX
 - St. Petersburg, FL
- 3 interns each summer, for 3 months
- RII Careers Page:
<https://www.researchinnovations.com/careers>
 - Internships will be posted in the Fall

Cromulence Internships



- Complete 1 year of college
- Apply Jan-March for summer internship
- Interns usually start late May / early June, till August
- What they look for:
 - Computer Engineering, Computer Science, Electrical Engineering
 - Python, C, C++
 - CTF experience
- <https://cromulence.com/careers>
 - Internships appear there, fills fast, apply early
- US Citizen

Their career pages also a great resource for skills, type of work, other information

“We specialize in the development and execution of Computer Network Operation Tools, Cyber Competition Systems, Software Development, Program Analysis Tools, and Vulnerability Research.”



STR Internships



- What will the day-to-day work consist of during an STR internship?
 - Students will work on real programs with STR, no fake problems or concepts. We want our interns to gain real experience.
- When do the internship and co-op programs happen?
 - STR offers Spring and Fall Co-ops in addition to our Summer Internship program.
- <https://www.str.us/internships/> - Apply in January
- Who do we hire?
 - Electrical Engineering
 - Computer Engineering
 - Computer Science
 - Mathematics, Physics, Data Science and More

“Our full-time staff and interns practice: command and control, machine learning, cyber security, sensors development, signal processing, data analytics, & computer vision”

Digital Logic

- nandgame.com
 - Basic boolean algebra
 - Build primitive digital logic components
 - The building blocks of computers
- From Nand to Tetris
 - Book
 - Lecture Series (available on [Youtube](#))

The screenshot shows a web browser window for "NandGame - Build a computer from scratch" on Mozilla Firefox. The main area displays a logic circuit puzzle titled "Nand". It includes a specification table, component icons in a toolbox, and a workspace for connecting them. A tooltip says "Step 1: Drag components from the toolbox to the blue area". To the right, a sidebar provides game information and a welcome message.

Input	Output
a 0 0	1
0 1 1	1
1 0 1	1
1 1 0	0

The screenshot shows the "From Nand to Tetris" website. It features a banner for the book "Building a Modern Computer from First Principles" by Noam Nisan and Shimon Schocken, with a link to www.nand2tetris.org. Below the banner is a video player showing a man speaking. The video title is "From Nand to Tetris". At the bottom, the authors' names are mentioned.

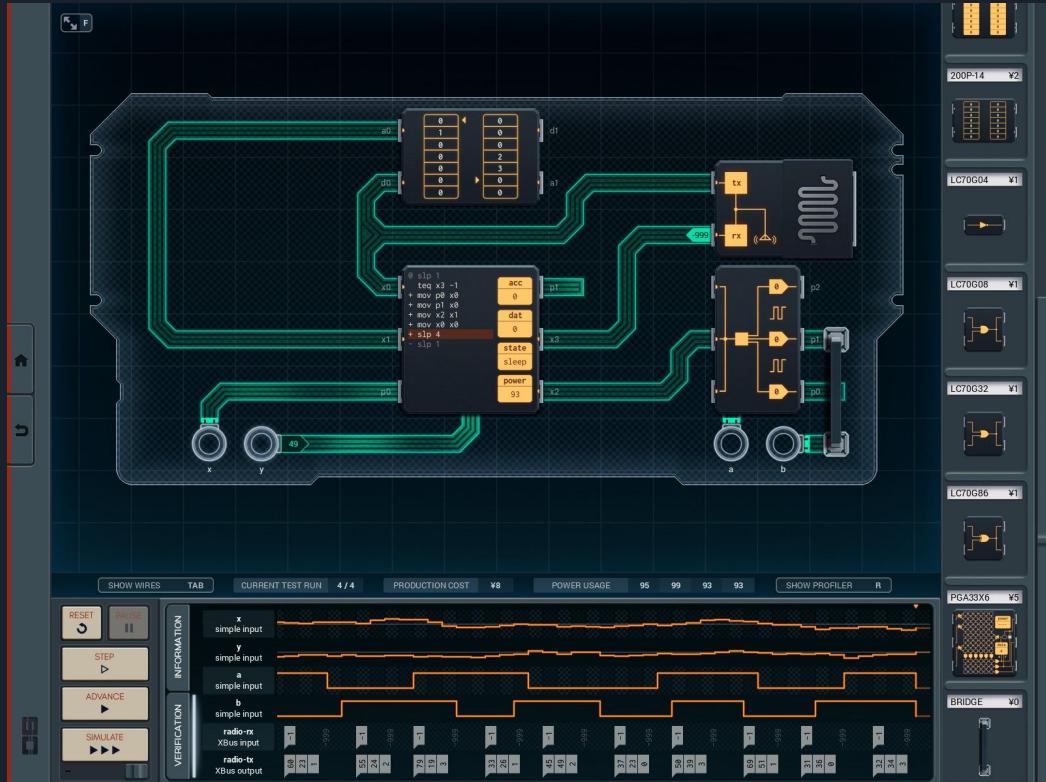
From Nand to Tetris

Noam Nisan and Shimon Schocken

Subtitles/clos

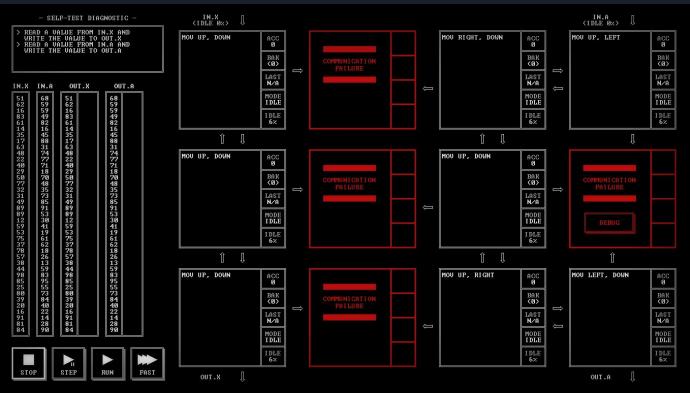
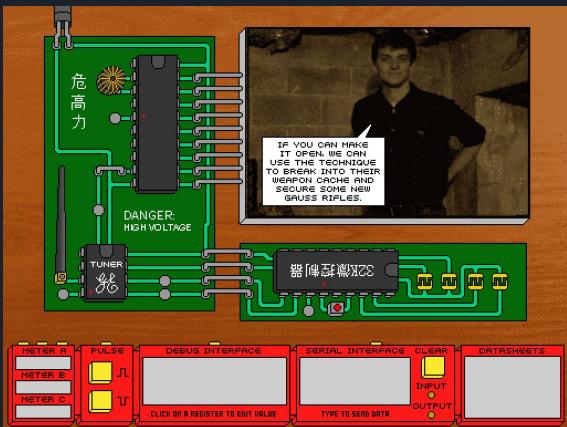
Shenzhen I/O

- PC / Steam Game
 - 95% positive rating
 - \$14.99
- Layout skills
- Assembly skills
- Timing diagrams
- Digital circuits



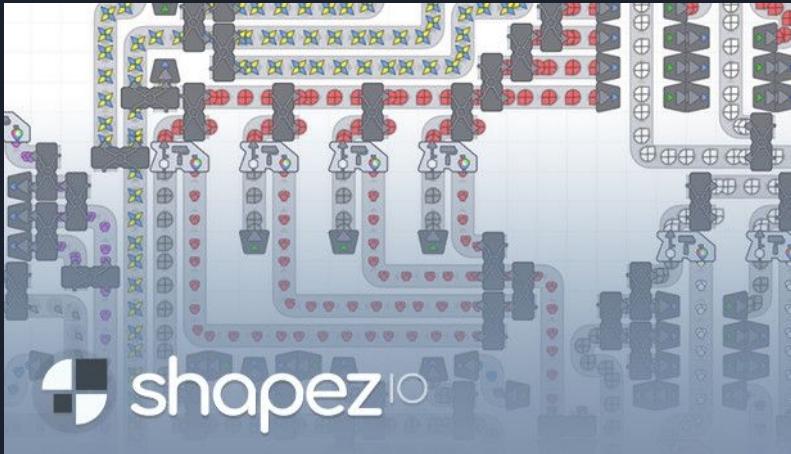
Other Zachtronics Titles

- TIS-100 (95% positive)
- Exapunks (96% positive)
- Last Call BBS (94% positive)
- Ruckingenur II
- KOHCTPYKTOP



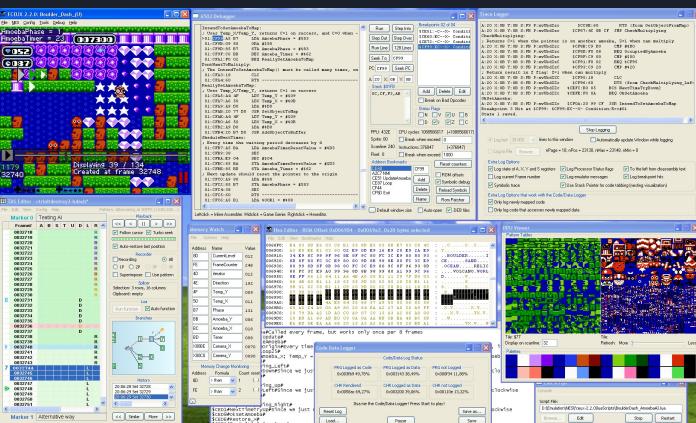
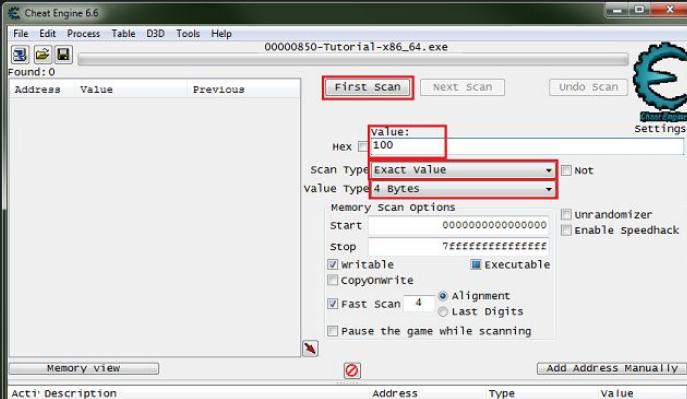
Factorio

- PCB Layout
- Pipelines
- Parallelization
- Other similar games:
 - Satisfactory
 - Shapez IO



Game Hacking

- Cheat Engine
 - Learn how memory can be manipulated
 - USE CAUTION
 - Some games may check for cheat engine
 - Don't get banned!
- Console Emulators
 - NES: fceux
 - Advanced debuggers
 - How much RAM does NES have?

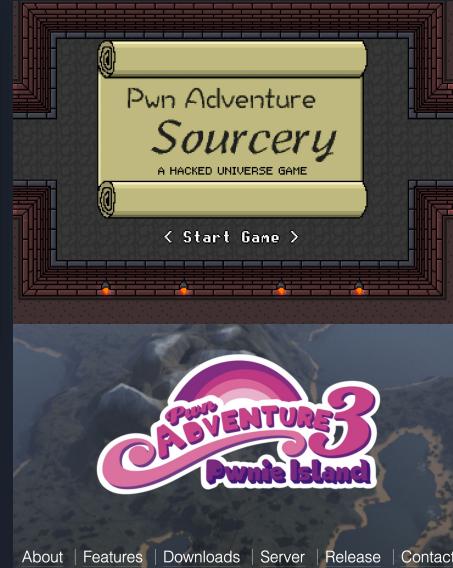


Hackable Games

PwnAdventure

- [PwnAdventure2](#)
- [PwnAdventure3](#)
- [PwnAdventureZ](#) (NES)
- Online [emulator](#)
- [SuperMonsterBall](#)
- [Sourcery](#) (Online)

Squally



CTFs

- TJ CTF
- picoCTF
- Over the Wire
 - <https://overthewire.org/wargames/bandit/>
- HackTheBox.com
- [Cyber Quest Academy](#) (Lockheed Martin)
- [Code Quest Academy](#) (Lockheed Martin)
- [MicroCorruption](#) - MSP430

The screenshot shows a debugger interface with several panes:

- Disassembly:** Shows assembly code for a function named `_trap_interrupt`. The assembly includes instructions like `mov #0x4400, sp`, `and.b #0x015c, r5`, and `bis #0xa08, r5`.
- Register State:** Displays CPU registers with their current values.
- Current Instruction:** Shows the instruction at address `0040: 3140 0044`.
- Debugger Console:** A text area containing a welcome message and instructions for interacting with the lock.
- Live Memory Dump:** A table showing memory dump data from address `0000` to `003D`.
- I/O Console:** An empty text area for I/O operations.

Coding Sites

- Codewars.com
- Codeingame.com
- codingbat.com
 - Java
 - Python

Or just write some code
for a project you are
interested in, put it on
github!

The screenshot shows a C++ code editor interface. The code is a solution for a logic gate problem. It includes input handling, logic gate definitions, and output generation. The code uses standard C++ libraries like `iostream` and `string`. It defines logic gates like AND, OR, XOR, etc., and generates output based on input signals and gate types.

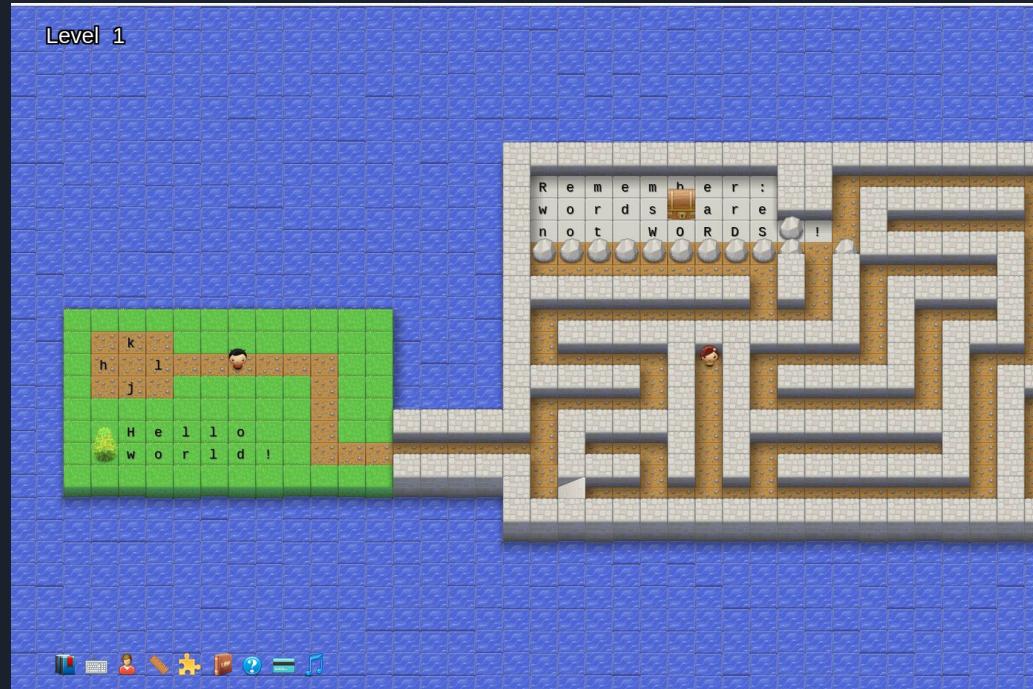
```
int main() {
    int m;
    cin >> m;
    cin.ignore();
    for (int i = 0; i < m; i++) {
        string input_name;
        string input_signal;
        cin >> input_name >> input_signal; cin.ignore();
    }
    for (int i = 0; i < m; i++) {
        string output_name;
        string type;
        string input_name_1;
        string input_name_2;
        cin >> output_name >> type >> input_name_1 >> input_name_2; cin.ignore();
    }
    for (int i = 0; i < m; i++) {
        // Write an answer using cout. DON'T FORGET THE "<< endl"
        // To debug: cerr << "Debug messages..." << endl;
        cout << output_name_and_signal" << endl;
    }
}
```

The interface includes sections for TEST CASES (with two entries: 01 and 02), CUSTOM, and Actions (PLAY ALL TESTCASES, SUBMIT).

Other Stuff

Vim-adventures.com

Why learn vim?



Reading

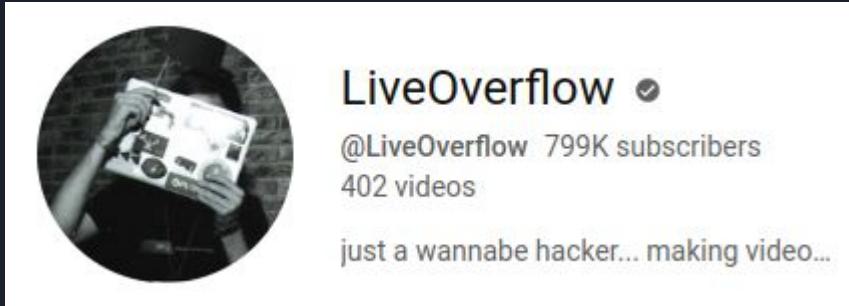
- Hacking: Art of Exploitation
 - C programming
 - Exploitation / bugs
 - If only there was a way to search for PDFs...
- Hack-a-day
 - Web blog
 - Retro projects
 - Embedded projects

The screenshot shows the homepage of Hackaday. At the top, there's a large "HACKADAY" logo with a skull icon. Below it, a banner for "FET: THE FRIENDLY EFFICIENT TRANSISTOR" features two cartoon characters. A sidebar on the left lists categories like HOME, BLOG, HACKADAY.IO, TINDIE, HACKADAY PRIZE, SUBMIT, and ABOUT. The main content area has a "FROM THE BLOG" section with an article about session puzzling. At the bottom right is a "SEARCH" bar.

The screenshot shows the front cover and an open page from the book "HACKING: THE ART OF EXPLOITATION". The cover features the title in large white letters and the subtitle "2ND EDITION" below it. The open page displays a terminal session showing assembly code and memory dump data, illustrating exploit development. The No Starch Press logo is visible at the bottom right of the page.

Youtube

- Live Overflow
 - Hacking, exploitation, CTF
- Adafruit Industries
 - Limor Fried - Lady Ada
 - Making, electronics, microcontrollers
- John Hammond
 - CTF walkthroughs
- Mark Rober
 - Engineering, making
- Electroboom
- Element 14
- EEV Blog



LiveOverflow ✓

@LiveOverflow 799K subscribers
402 videos

just a wannabe hacker... making video...





Make something / have a project

- Something that wastes your time but you could improve with software
 - Repetitive tasks / boring work
- What new technology just became popular / affordable?
 - Wireless communications / mobile connectivity / mesh networks
 - AI / Machine learning
- Information processing / aggregation
 - Lots of websites have free APIs
 - Combine 2 different things together
- Make a game / rom hack / mod to existing game, or a demo
- Look for coding jams / hack-a-thons
- What could help a Ukrainian right now?



Links

- <https://fred.stlouisfed.org/>
- <https://www.nand2tetris.org/>
-