Christopher Knap

I build things that others use

Candidate for the Talent Scholarship
Gdańsk University of Technology · ETI Faculty

Who am I?

About me

· If I had to describe myself in one sentence, I would say: “**I build projects with usability in mind**, long-term value, and concrete usefulness for others.”

· For years, I have been developing an **educational platform**, which is not a one-off project, but **a place genuinely used by pupils and students**.

· This is where I see the greatest value in projects. **Knowledge**, **materials and tools** have practical use there, instead of stopping at the idea stage.

· **I do not write code for its own sake**. I create it so that it is genuinely useful for a specific audience and **solves real problems**.

City

Gdańsk

Degree program

Computer Science - ETI, Gdańsk University of Technology

Programming Languages

C#, **C++**, **Python**, **Perl**, Java, JavaScript

Interests

Algorithms, building **software projects**, chess, languages, jogging, guitar, strength training, hiking and sightseeing

Distinctions

Scholarship of the Mayor of Gdańsk (2021-23)
Scholarship of the Marshal of the Pomeranian Voivodeship 2022

Competition achievements

★ IN PROGRESS

Qualified for Stage II of the ETI Academy Games

Stage II will take place on April 18, 2026

ETI

Finalist of the national stage of the **Motorola Science Cup** (2024)

Finalist of the **Pomeranian Problem-Solving League** (2023)

13th place in the **4th National CMI Team Algorithmic Competition** (2023)

Winner of the **Junior English Language Olympiad** (2022)

Winner of the **Regional Superintendent's English Competition** (2022)
2nd place in Pomerania among more than 8,000 participants

Finalist of the **Regional Superintendent's Computer Science Competition** (2022)

And many others…

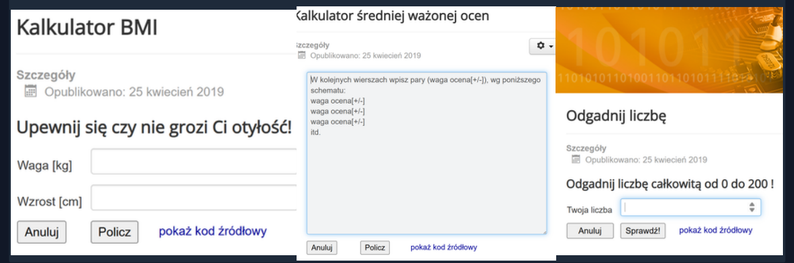
Most of my achievements can be viewed on my website

Educational platform - sharing knowledge

For years, I have been building my own educational platform. I believe, that knowledge becomes even more valuable when it is passed on. In addition, to increase reach, the site is available **in two language versions** (PL, EN)

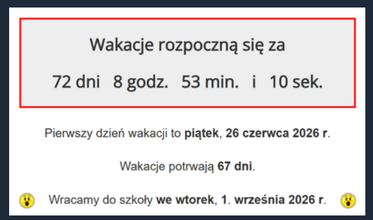
Perl

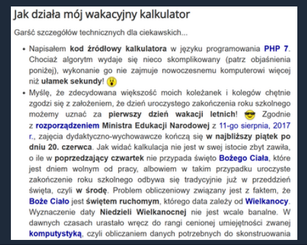
Projects in **Perl** with code examples [link]



Vacation Calculator

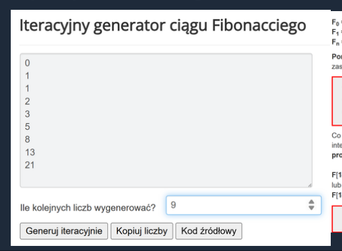
Calculating the exact start date of the summer holidays using **Gauss's algorithm**

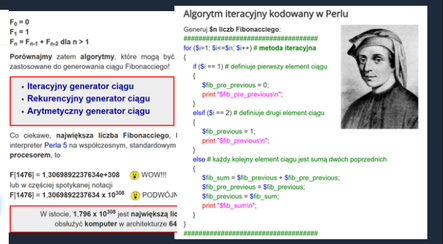




Algorithms

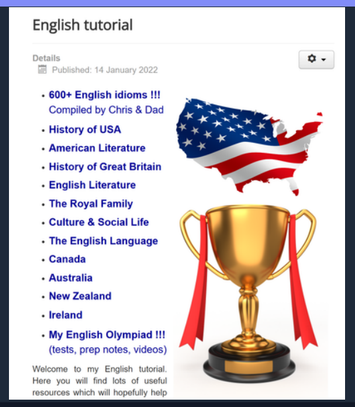
Fibonacci sequence - analysis of the most popular algorithms [link]





English

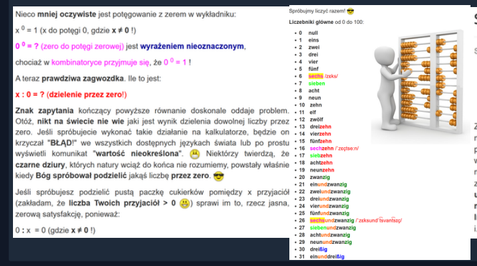
Preparation module for the **Regional Superintendent's Competition** based on my own notes [link]



Chess trivia, the Shannon number and other curiosities [link]

Mathematics and more

The history of zero, German tutorial

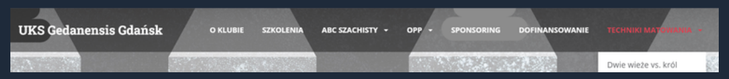


chesswise.defiantchris.com · educational platform

Educational platform - interesting projects

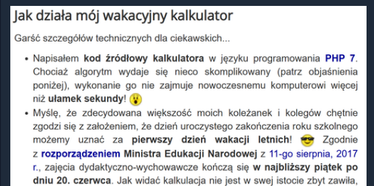
Checkmate technique trainer

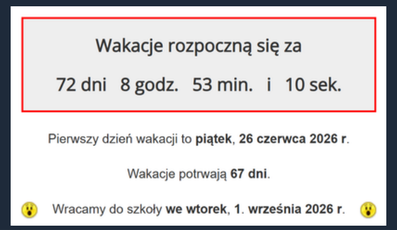
The endgame trainer enables **interactive practice of 7 classic endgame types** present in almost every chess game.
The project remains popular to this day. It appears **on my club's website, UKS Gedanensis**, serving as practice material for the youngest chess players

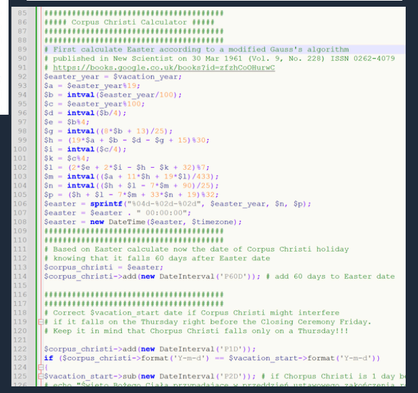


Vacation Calculator

Calculating the exact start date of the summer holidays using **an improved Gauss algorithm** to determine Easter Sunday in a given year (the date of Corpus Christi depends on Easter, and this in turn determines exactly when the summer holidays begin). Details here

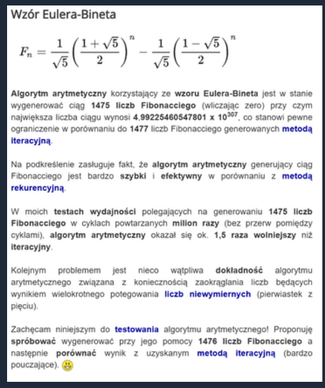


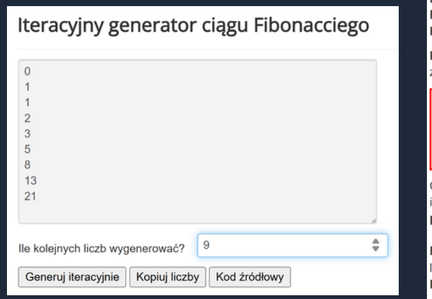


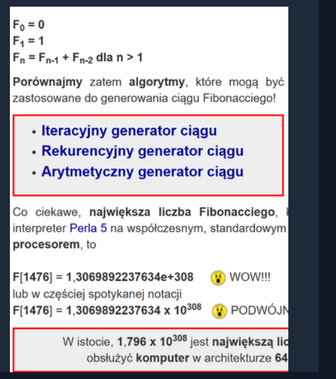


Fibonacci sequence

In-depth analysis of all computational algorithms through **benchmarks** and a comparison of how they work. All **source code** and test results are available here





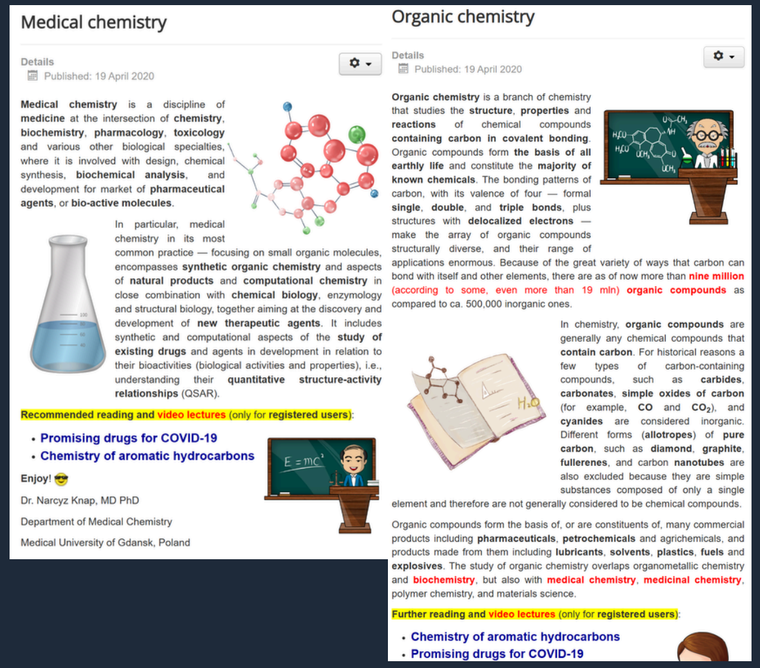


Educational platform - partnership with GUMed

During the COVID-19 pandemic, I established **cooperation with the Department of Medical Chemistry at GUMed** and **the Pomeranian Medical College** (**PoCoMed**) to provide access to educational materials for students interested in computer science, mathematics, biostatistics, foreign language learning, and medical chemistry, especially **the search for effective drugs against COVID-19**, which was an especially important topic during the pandemic.

Medical Chemistry

Lectures on medical and organic chemistry



Medical chemistry

Details
Published: 19 April 2020

Medical chemistry is a discipline of **medicine** at the intersection of **chemistry**, **biochemistry**, **pharmacology**, **toxicology** and various other biological specialties, where it is involved with design, chemical synthesis, **biochemical analysis**, and development for market of **pharmaceutical agents**, or **bio-active molecules**.

In particular, medical chemistry in its most common practice — focusing on small organic molecules, encompasses **synthetic organic chemistry** and aspects of **natural products** and **computational chemistry** in close combination with **chemical biology**, enzymology and structural biology, together aiming at the discovery and development of **new therapeutic agents**. It includes synthetic and computational aspects of the **study of existing drugs** and agents in development in relation to their bioactivities (biological activities and properties), i.e., understanding their **quantitative structure-activity relationships** (QSAR).

Recommended reading and video lectures (only for registered users):

- **Promising drugs for COVID-19**
- **Chemistry of aromatic hydrocarbons**

Enjoy! 😎

Dr. Narcyz Knap, MD PhD

Department of Medical Chemistry

Medical University of Gdansk, Poland

Organic chemistry

Details
Published: 19 April 2020

Organic chemistry is a branch of chemistry that studies the **structure**, **properties** and **reactions** of chemical compounds **containing carbon in covalent bonding**. Organic compounds form **the basis of all earthly life** and constitute the **majority of known chemicals**. The bonding patterns of carbon, with its valence of four — formal **single**, **double**, and **triple bonds**, plus structures with **delocalized electrons** — make the array of organic compounds structurally diverse, and their range of applications enormous. Because of the great variety of ways that carbon can bond with itself and other elements, there are as of now more than **nine million** (according to some, even more than 19 mln) **organic compounds** as compared to ca. 500,000 inorganic ones.

In chemistry, **organic compounds** are generally any chemical compounds that **contain carbon**. For historical reasons a few types of carbon-containing compounds, such as **carbides**, **carbonates**, **simple oxides of carbon** (for example, **CO** and CO_2), and **cyanides** are considered inorganic. Different forms (**allotropes**) of **pure carbon**, such as **diamond**, **graphite**, **fullerenes**, and carbon **nanotubes** are also excluded because they are simple substances composed of only a single element and therefore are not generally considered to be chemical compounds.

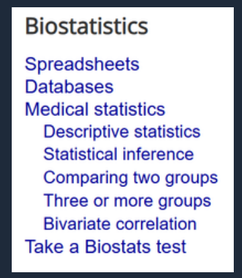
Organic compounds form the basis of, or are constituents of, many commercial products including **pharmaceuticals**, **petrochemicals** and agrichemicals, and products made from them including **lubricants**, **solvents**, **plastics**, **fuels** and **explosives**. The study of organic chemistry overlaps organometallic chemistry and **biochemistry**, but also with **medical chemistry**, **medicinal chemistry**, polymer chemistry, and materials science.

Further reading and video lectures (only for registered users):

- **Chemistry of aromatic hydrocarbons**
- **Promising drugs for COVID-19**

Biostatistics

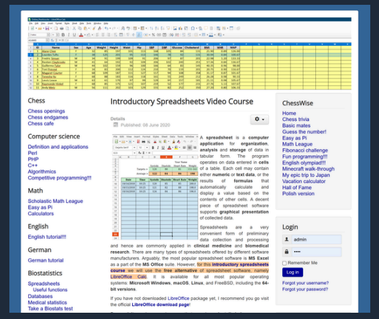
Numerous articles and video lectures



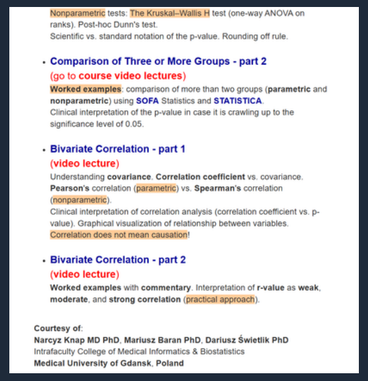
Biostatistics

Spreadsheets
Databases
Medical statistics
- Descriptive statistics
- Statistical inference
- Comparing two groups
- Three or more groups
- Bivariate correlation

Take a Biostats test



Introductory Spreadsheets Video Course



Nonparametric tests: The Kruskal–Wallis H test (one-way ANOVA on ranks). Post-hoc Dunn's test.
Scientific vs. standard notation of the p-value. Rounding off rule.

- **Comparison of Three or More Groups - part 2**
(go to **course video lectures**)
Worked examples: comparison of more than two groups (**parametric** and **nonparametric**) using **SOFA** Statistics and **STATISTICA**.
Clinical interpretation of the p-value in case it is crawling up to the significance level of 0.05.

- **Bivariate Correlation - part 1**
(**video lecture**)
Understanding **covariance**. **Correlation coefficient** vs. covariance. **Pearson's** correlation (parametric) vs. **Spearman's** correlation (nonparametric).
Clinical interpretation of correlation analysis (correlation coefficient vs. p-value). Graphical visualization of relationship between variables.
Correlation does not mean causation!

- **Bivariate Correlation - part 2**
(**video lecture**)
Worked examples with **commentary**. Interpretation of **r-value** as **weak**, **moderate**, and **strong correlation** (practical approach).

Courtesy of:
Narcyz Knap MD PhD, **Mariusz Baran PhD**, **Dariusz Świetlik PhD**
Intrafaculty College of Medical Informatics & Biostatistics
Medical University of Gdansk, **Poland**

Let us go practice (video lectures only for registered users):

- **Descriptive Medical Statistics - part 1**
(go to **course video lectures**)
Basic concepts and ideas. Statistical **nomenclature**. Statistical sampling. **Sampling error**. Variables. **Scales of measurement**.
Measures of **central tendency** (**mean**, **median**, **mode**) and their relationship in **normal**, **skewed** and **bimodal distributions**.

- **Descriptive Medical Statistics - part 2**
(go to **course video lectures**)
Measures of **data dispersion** (**variability**): range, variance, **standard deviation**, **coefficient of variation**.
Graphical presentation of statistical data (histogram, **cumulative histogram**). Experimental study design.
Prospective clinical study (**correlation** vs. **causation**).
Using **spreadsheet** software (LibreOffice Calc) to calculate **descriptive statistical parameters**.

- **Introduction to Statistical Inference - part 1**
(go to **course video lectures**)
Unique **properties** of **Normal Distribution**. Population **mean μ** and **standard deviation σ**. **Three-sigma rule** of thumb.
Frequency vs. **Probability**. An idea of **Sampling Distribution**. Statistical interpretation of **Clinical Reference Range**.

Educational materials for schools

Several renowned **high schools from the Tri-City** and the **Kashubia region** (**Kartuzy**) have participated in the project for years. As a result, the materials on my website are continually visited by successive generations of high school students, as well as program graduates who are now studying medicine at GUMed.

My role

While working with **Prof. Michał Woźniak** and Dr. Narcyz Knap as part of **PoCoMed** I provided students with access to educational materials and also participated in generating data for a biostatistics course in the **R programming language**.

chesswise.defiantchris.com · educational platform

Educational platform – statistics

The website has existed for many years and **is gaining popularity**, as shown by viewing and data-transfer statistics.

108,785+

visits in the last year

4,53+ TB

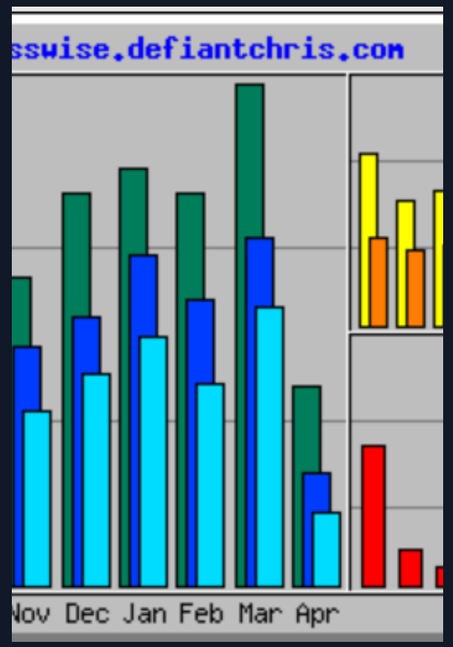
data transferred in the last year

378,832+

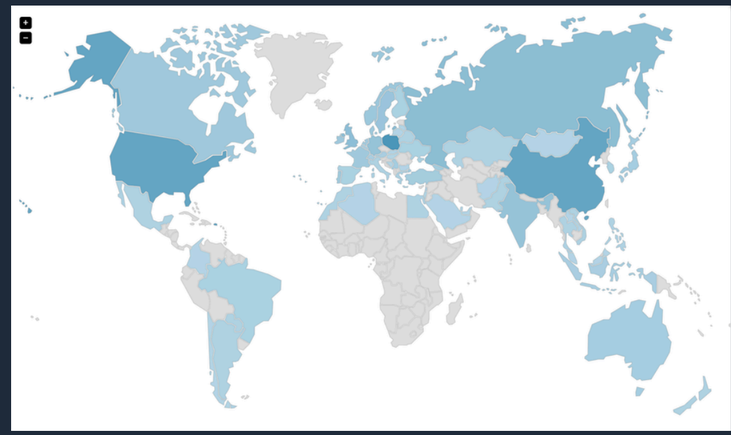
files viewed in the last year

Summary by Month

Month	Daily Avg				Monthly Totals					
	Hits	Files	Pages	Visits	Sites	KBytes	Visits	Pages	Files	Hits
Apr 2026	1964	1116	721	285	3959	2047618416	3997	10103	15628	27501
Mar 2026	2235	1549	1241	385	9739	613643873	11962	38477	48020	69306
Feb 2026	1934	1409	995	322	6548	43166484	9019	27877	39467	54164
Jan 2026	1860	1471	1109	357	9349	28713569	11086	34380	45601	57681
Dec 2025	1742	1199	936	336	7430	77846740	10430	29024	37181	54002
Nov 2025	1411	1097	800	362	6875	110271317	10869	24013	32927	42338
Oct 2025	1549	999	736	309	6622	100671931	9589	22830	30976	48044
Sep 2025	1677	972	887	393	8257	116682491	11800	26639	29179	50333
Aug 2025	990	711	536	279	5456	78204867	8652	16643	22055	30703
Jul 2025	1482	831	990	213	4018	167084962	6626	30697	25782	45947
Jun 2025	927	714	589	207	3730	299067869	6216	17692	21447	27811
May 2025	1315	986	820	275	4358	1180698770	8539	25441	30569	40774
Totals						4863671289	108785	303816	378832	548604



International map of website users



Projects: GTA5 modifications (C#)

*I independently learned the **game engine** of **Rockstar Games** (Rage Engine) without **any official documentation**, while information and tutorials about it on the Internet are very limited. Through nothing but **experimentation**, **code analysis** and **my own mistakes** I was able to create **a valuable final product in the** form of **mods ready to download and install**.*

58,000+

total downloads

474

positive ratings

34,000+

lines of code

1+ year

on gta5-mods.com

Schedule V

Full **reimplementation of the bestselling game** "Schedule 1" (2025), with additional original features. The project contains approx. **10,000 lines of code**, in which I independently programmed everything from the backend all the way to the UI layout.

Garages & Dealerships

An original system of car dealerships allowing the player to legally purchase a vehicle, including **details**, such as **insurance in the event of an accident**. Combined with **a unique vehicle storage system** in garages and saving between sessions.

Realistic Vehicle Damage

A mod **promoting safe driving** through a realistic vehicle damage model. It includes additional features such as seat belts, which protect the player from injuries at high speed.

https://gta5-mods.com/users/V8Enthusiast · All mods available for free

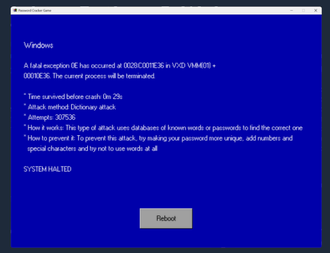
Projects: Python

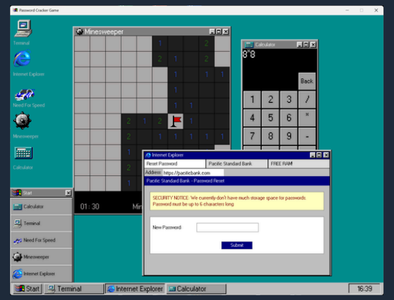
PYTHON

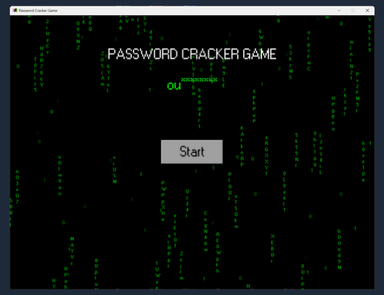
Education

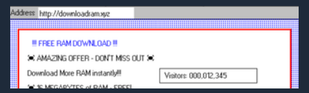
PasswordCrackerGame

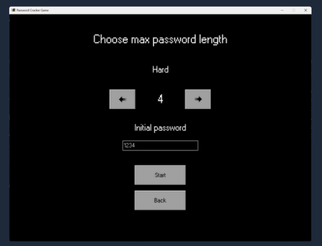
Educational tool for the GEEK competition. The user learns about **password security** by simulating real hacking. Windows 95-style graphical interface.









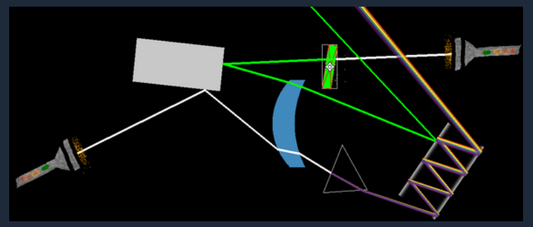


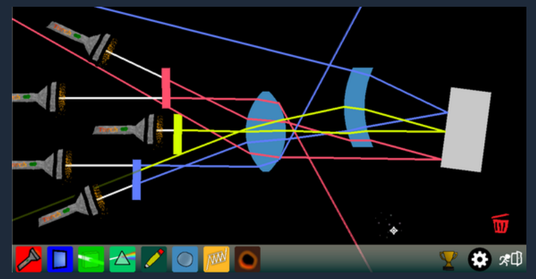
github.com/V8Enthusiast/PasswordCrackerGame

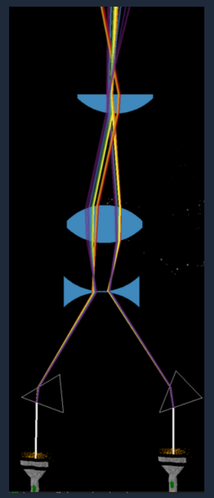
Education

Optyka

Interactive simulation of optical phenomena (lenses, multi-ray flashlight, light intensity, prisms, and mirrors). Created as a **teaching tool** for illustrating physical processes that are difficult to imagine. Ideal for introducing **the concept of lenses in physics lessons**.





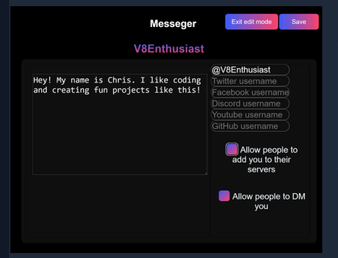


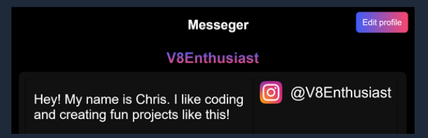
github.com/Hohenzoler/optyka

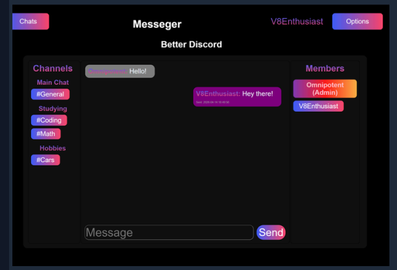
Client-Server

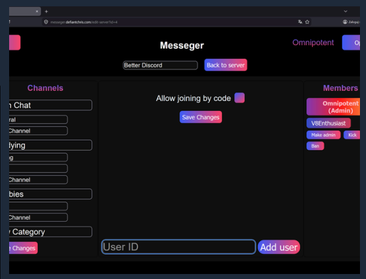
Messeger

Internet messenger built from scratch in Python using Flask + Socket.IO. Complete client-server architecture with real-time chat support. Supports group chats with channel creation and user group administration.









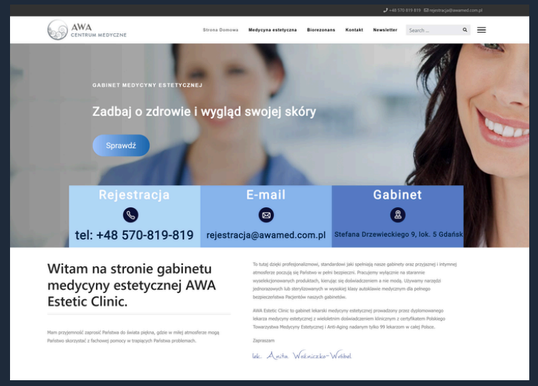
github.com/V8Enthusiast/Messeger

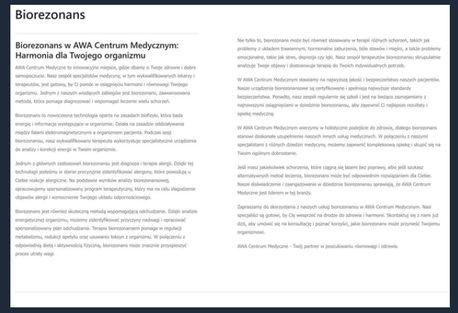
Health-oriented web projects

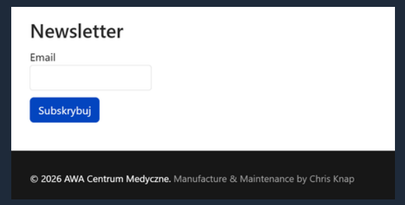
W E B

awamed.fit

My **first commercial project**, involving the design, implementation, and hosting of the website for the AWA Center of Aesthetic Medicine

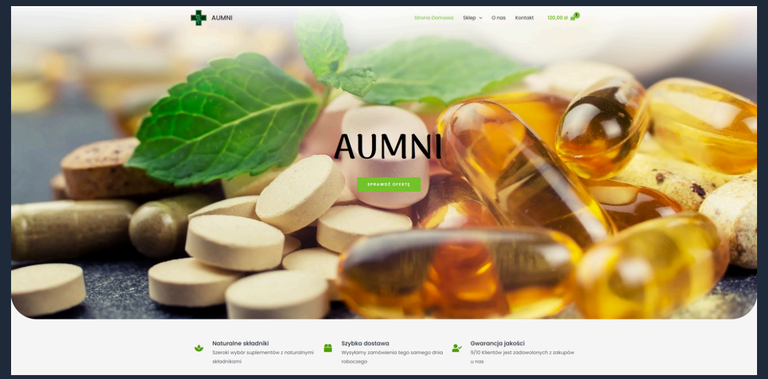


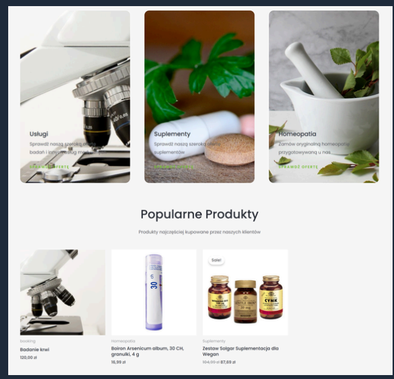


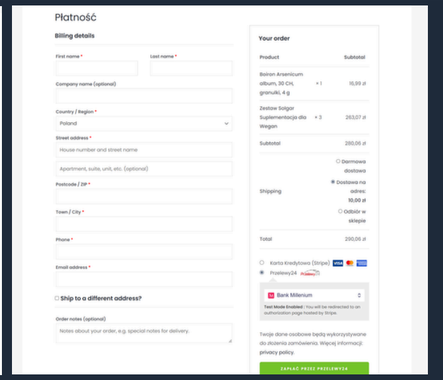


pharmacy.defiantchris.com

Online store with a working online payment system, ultimately designed with my mother's family business in mind







Technical skills

PROGRAMMING LANGUAGES

OTHER

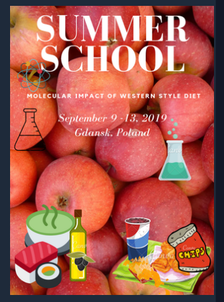
HTML/CSS/JS | Flask | Socket.IO | Git | Linux | Joomla | WordPress | SQL | Blender | R | PyQt

Miscellanea

Over the years, I have been involved in many different activities. Below are some smaller ones that do not have their own dedicated slide, but concern important topics and are certainly worth mentioning.

International conference on obesity

In 2019, an **international conference was held,** organized by the Department of Medical Chemistry GUMed to **support the fight against obesity and diabetes among children and young people**. **It was attended by high school students from Poland, Italy, and Japan**. My role included promoting the event and creating a promotional poster.

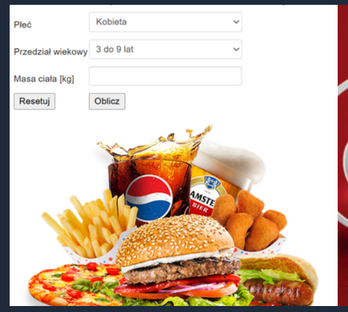


Server management

While building my educational platform over the years, I learned skills such as **MySQL database administration**, building **scripts Perl CGI and PHP**, regularly creating **backups** securing file access at the **.htaccess level of the Apache server** creating content in **CMS systems** (Joomla, WordPress).

Diet calculator

Inspired by Dr. Rafał Gałąska, a cardiologist at the GUMed clinic, a project of health-oriented medical calculators was created



Cybersecurity

Recently, I worked on **modernizing the topology and securing my home Wi-Fi network** and **implemented a smart home system** based on **IoT devices from the brand Sonoff**.

Numerous chess achievements

For years, I took part in **a large number of chess tournaments**. Sometimes I managed to achieve a high placement. All my chess achievements are available here.

Why Gdańsk University of Technology and ETI?

I chose **Gdańsk University of Technology** and specifically **ETI**, because it is a place where I would like to enrich my experience with **a solid engineering education**. For years I have been creating things with specific users and real value, so I care about studying at a university that promotes reliable knowledge and professionalism.

Approach to projects

ETI is a place where projects go beyond theory. I am looking for an environment where solutions are created for real problems and specific user groups.

Technical development toward systems

I want to develop my programming skills in backend, distributed systems, and application architecture - the foundations of modern software products that I am already trying to build independently.

Community and an ambitious environment

I care about being surrounded by people who set high standards for themselves. Competitions, student initiatives, and joint projects are the environment in which I develop best.

A natural continuation of my path

As a recipient of local scholarships and a participant in ETI-related initiatives, I see this university as the natural next step in my education. Through contact with ETI students, I have a realistic picture of the studies and their requirements, which only strengthens my belief that it will be the right environment for my optimal development.

Plans and vision for university studies

01

Plans

· I do not want to be a passive recipient of knowledge. I care about active participation in a project-oriented environment.
· I have just undertaken an **attempt to implement AI technology in QSAR analysis** (Quantitative Structure-Activity Relationship) **of chemical molecule parameters** (molar mass, lipophilicity measured by the octanol-water partition coefficient, water solubility, number of hydrogen bonds, electrophilic potential) designed **for new drugs with potential clinical applicability in cancer therapy** (Department of Medical Chemistry, GUMed).

02

During my studies

· Development toward backend systems, distributed systems, and application architecture.
· Creating public projects: applications, games, modifications, and tools with real-world use.
· Combining algorithms, mathematics, and project engineering in practical IT solutions.
· Continuing educational work by creating teaching materials and tools.

03

Long-term goal

To leave university not only with a degree, but with a portfolio of work showing that I can turn ideas into working solutions. My goal is to develop toward creating systems that not only function correctly, but also have real users and practical applications. Promoting a healthy lifestyle among young people seems especially important.

I build things that others use

378,832+
file views on my educational platform in the last year

58,345+
downloads of modifications I created

10+
public projects

ETI
my goal

Christopher Knap · Gdańsk University of Technology 2026 · github.com/V8Enthusiast

Thank you for your attention