RODION MAYATSKIY

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EDUCATION

University of Alabama at Birmingham | Honors College — Expected May 2029
B.S. in Computer Science & B.S. in Physics (Data-Driven Modeling and Technology concentration), Minor in Mathematics
GPA: 4.0 | **Presidential Honors List** | Early Admission, Accelerated Bachelor's-to-Master's Program in AI

WORK & RESEARCH EXPERIENCE

Teaching Assistant, CS 103: Intro to Python | UAB Department of Computer Science — Aug 2026 – Present
- Appointed **primary TA** by the instructor for a **60+ student** course; sole grader of all homework and lab assignments.
- Teach a weekly **2-hour** lab of **~40 students** and hold office hours on Python, debugging and problem-solving (**10 hrs/week**).

Web Developer Intern | BOR Realty, LLC | azrussianrealtor.com — Summer 2026
- Shipped a **bilingual (English/Russian)** brokerage site in **Next.js 14, React, TypeScript** and **Tailwind CSS**: **18 pages**, **WCAG 2.1 AA**.
- Automated a **689-video** library via the **YouTube Data API v3**, **Node.js** and daily **GitHub Actions**; **300+ Playwright** tests.
- Added **schema.org JSON-LD**, hreflang and sitemaps for Google and AI search; cut the hero video **76%** with **ffmpeg**.

Undergraduate Researcher, Computational Plasma Physics | Dr. Renato Camata, UAB Physics — May 2026 – Present
- Simulate laser-generated plasmas (coupled **laser ablation + fluid dynamics**) in **C (Basilisk)** on the **Cheaha** supercomputer **(Bash)**.
- Build **synthetic plasma datasets** and **Python** pipelines that validate the lab's **ML** models; **1 of 3** on the simulation team.
- Co-authored an abstract with **Oak Ridge National Lab** on **ML-guided** laser deposition, accepted for an **oral talk at AVS 72**.

Web Content Editor Student Assistant (Front-End Web Developer) | UAB Student Affairs — Oct 2025 – Present
- Maintain **1,500+ pages** across **20+ UAB websites** in **Joomla 5**, writing custom **HTML, CSS, JavaScript** and Bootstrap.

PROJECTS & AWARDS

1st Place, HackBama_01 (EcoCAR Track): Autonomous Race-Car Controller | github.com/rmaytr/HackUAB — Oct 2026
- Built a self-driving race-car "brain" in **Python/NumPy** for **CARLA**: a **4-stage** real-time pipeline that decides every **50 ms** on **1 CPU**.
- Owned the **minimum-curvature racing line** (least squares) and a **vehicle-dynamics model** that checks tire grip **1.5 s** ahead.
- Built an **ECO driving mode** (**~30%** less energy) and a web lap visualizer, as well as **lidar, radar** and **camera** sensor fusion.
- **0** cone hits in **22** laps on unseen tracks, **129** automated tests; coordinated a **3-person** team's merges and pitch in **12 hrs**.

Pigeon Problems: Real-Time 3D Multiplayer Browser Game | pigeon-problems.vercel.app — Oct 2026
- Built a **1–4 player** co-op 3D platformer in **Three.js/WebGL** on **Cloudflare Workers** (**Durable Objects**) with **WebRTC** voice.
- Wrote server-authoritative netcode (**60 Hz** simulation, **20 Hz** snapshots) with client-side prediction, verified under **300 ms** of lag.
- Shared one physics engine between browser and server; **62** engine tests, **65 Playwright** checks, full runs with **4** live clients.

Canvas Assignment Tracker: Multi-User Telegram Bot | github.com/rmaytr/CanvasAssignmentTrackingBot — 2026
- Built a **Python asyncio** bot (**5,500+ lines**) on the **Canvas REST API** that ranks work by grade weight and urgency; **6** beta users.
- Isolated each user (own **SQLite** DB, **Fernet**-encrypted tokens); **426 tests** at **94%** coverage; deployed with **Docker** on **Google Cloud**.
- Wrote a DST-correct scheduler that can't double-send reminders after a crash, checked by a **3-week** simulation (**~28,800** ticks).

Phasora: AI Physics Learning Platform | phasoraai.com — Mar 2026 – Present
- Early-stage AI physics tutor on the **Anthropic API** that gives hints, not answers; **2** concept pages live with simulations and **Manim**.

2nd of 30, ASU Game Development Camp: UE5 Third-Person Adventure Game — Jun 2024
- Built a 3D adventure game in **Unreal Engine 5** with **C++** and **Blueprints** in **2 weeks**, judged on technical design and execution.

LEADERSHIP & INVOLVEMENT

Events Chair | Association for Computing Machinery (ACM) at UAB — Aug 2026 – Present
- Plan and organize the year's events for UAB's largest computing organization: LeetCode nights, alumni panels, recruiting events.

Founder & President | The AI Collective at UAB — Feb 2026 – Present
- Founded UAB's **first interdisciplinary AI organization**: wrote its constitution, built a **4-officer** board, designed **5** tracks.

Freshman Forum Member, Member of the Year | USGA — Sep 2025 – May 2026
- Proposed and led **Micro-Internships** with the **UAB Career Center**: secured **$2,000** to place **10** freshmen in **7** campus departments.
- Now **Project One**, a permanent Career Center program that grew to **20** students and **18** departments, including **3** off campus.

SKILLS

Programming: Python, C, C++, Java, JavaScript, TypeScript, HTML/CSS, Bash | **Languages:** English (fluent), Russian (native)
Frameworks & Tools: React, Next.js, Node.js, NumPy, CARLA, Three.js, WebSockets, WebRTC, pytest, Playwright, Git, GitHub Actions
Cloud, HPC & AI: Cloudflare Workers, Docker, Google Cloud, SQLite, Linux/HPC, Basilisk, Anthropic API, Claude Code, Codex