

Khusanjon Bobokhojaev

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Education

California Lutheran University (CLU) - Thousand Oaks, CA

BS Computer Science & BS Physics, Minor: Math

Completed Coursework: 3D Engineering Design, Advanced Computer Programming with Python, Applied Electronics, Geometric & Physical Optics, Machine Learning, Statistical Physics & Thermodynamics

Expected May 2027

Cumulative GPA: 3.98

Current Coursework: Classical Mechanics, Object-Oriented Design & Analysis

Research Experience

Research Fellow - CERN | FERMILAB | CLU - Advisor: Sebastian Carron Montero

May 2024 - Present

Conducted data analysis and algorithm optimization to identify supersymmetric (SUSY) signals, improved signal-to-background ratios, transitioned datasets from MiniAOD to NanoAOD, and implemented boosted decision trees for particle detection

Work Experience

Physics Department Assistant - California Lutheran University

Sep 2025 - Present

- Support physics instruction by preparing and maintaining lab setups, tutoring students in core physics concepts, and organizing equipment for new and existing experiments

Math Center Tutor - California Lutheran University

Sep 2025 - Present

- Provide individual and group tutoring in mathematics from algebra to statistics, enhancing students' problem-solving skills and conceptual understanding while collaborating with faculty to foster an effective learning environment

Assistant Center Director - Mathnasium - Thousand Oaks, CA

Aug 2025 - Present

- Instruct students (grades 2–12) in mathematics from basic arithmetic to calculus, creating individualized learning plans and supporting daily center operations, including inventory, staff coordination, and progress tracking

Projects

Blynk IoT Remote Garage Door Opener – Built an **ESP32 IoT garage controller** with motor control and a custom 3D-printed housing, integrated with the Blynk app

Dual-Mode Distance Measuring Device - Created an Arduino distance system combining ultrasonic and VL53L0X ToF sensors for improved accuracy across ranges

Analog Musical Keyboard - Designed a 5-key polyphonic analog keyboard using logic ICs, 555-timer oscillators, and LTspice-verified circuits

Newtonian Gravitation Simulation – Developed a C++ N-body gravitation simulator with numerical integration and raylib visualization of orbital dynamics

MNIST Handwritten Digit Recognition – Trained a PyTorch CNN and deployed it with a GUI for real-time handwritten-digit classification

Skills

Proficient - C++ (OOP, templates, STL), Python (PyTorch, NumPy), Arduino/C, ESP32 development, HTML/CSS/JavaScript, SolidWorks/Onshape, LTspice, 3D printing, numerical simulations, analog/digital electronics, sensor integration (I2C/PWM), Git/GitHub, Machine learning workflows, model deployment (GUI + PyTorch), stepper/servo motor control

Intermediate - Bash scripting, PlatformIO, CMake/MinGW toolchains, ROOT & NanoAOD analysis, inverse kinematics, circuit design & soldering, data structures and algorithms

Familiar: SQL, MATLAB, WiFi networking on ESP32, CMSSW/Coffea

Soft Skills: Technical communication, problem-solving, mentoring/tutoring, collaborative project development