

Student Sessions 2023

Report of Contributions

Contribution ID: 1

Type: **not specified**

Jooyoung Lee

Wednesday 9 August 2023 09:00 (15 minutes)

Optimization of 500MHz Pixie-16 Card for Fast Time Measurement

As a summer student in ISOLDE decay station (or IDS) my job is to optimize 500MHz pixie-16, which is a data acquisition module used for fast time measurement. Today, I would like to introduce the physics motivation, method of optimization and more.

Presenter: LEE, Jooyoung

Session Classification: Student Session

Contribution ID: 2

Type: **not specified**

Anton Taleiko

Wednesday 9 August 2023 09:15 (15 minutes)

My name is Anton Taleiko and I study computer science at the University of Helsinki in Finland. I finished my bachelor's studies in 2022 and have worked as a research assistant for one year as part of my Finnish non-military service, which is an alternative to the military service that is mandatory for all men in Finland.

At CERN I have been working with data conversion in the ATLAS summer student project FLAG (FLUKA Acts-Geant4), which aims to simplify complex 3D models of particle detectors to make radiation simulations less demanding for the computation hardware. Radiation simulations can be used to estimate how long particle detectors can be used before they decay, and their efficiency goes down because of the radiation they are exposed to. After my summer at CERN I will continue my studies in the master's programme in computer science at the University of Helsinki. I am interested in artificial intelligence.

Presenter: TALEIKO, Anton

Session Classification: Student Session

Contribution ID: 3

Type: **not specified**

Meng Lyu

Wednesday 9 August 2023 09:30 (15 minutes)

Extending long-lived particle measurements in LHCb

Meng Lyu has just obtained his bachelor's degree with a major in Electronics Science and Technology and a minor in Physics at Shanghai Jiao Tong University. In the past three years, he's engaged in both data analysis and hardware development. Recently, he devoted himself to developing a cosmic muon detector, including apparatus design and readout circuit design, soldering and testing.

As a summer student, here at CERN, he makes an effort to further tap the potential of the T-track at the LHCb experiment so as to extend the frontier of long-lived particle research at LHCb.

Presenter: LYU, Meng (CERN)

Session Classification: Student Session

Contribution ID: 4

Type: **not specified**

Matthias Ludwig

Wednesday 9 August 2023 09:45 (15 minutes)

AFP TOF

I am Matthias Ludwig from Germany and study in the third year of the bachelor program in physics at KIT in Karlsruhe. At CERN, I am working on the Atlas Forward Proton detector at the Time-of-Flight subdetector, which I will present.

Presenter: LUDWIG, Matthias

Session Classification: Student Session

Contribution ID: 5

Type: **not specified**

Knut Sorbo

Wednesday 9 August 2023 10:15 (15 minutes)

Engineering escape game

My name is Knut Sørbo, and I come from Norway. There I attend the smallest, and the most beautiful, university in the country, Norwegian University for Life Sciences, which lays half an hour outside of Oslo. There, I study to become a high school teacher in physics, programming and mathematics. Right now, I am on my fifth and final year of that study, but I also have a bachelor's degree in mechatronics from the university of Agder in southern Norway. It is because of this combination I was chosen to make an engineering escape game for the new Science Gateway for the TSP group.

Presenter: SORBO, Knut

Session Classification: Student Session

Contribution ID: 6

Type: **not specified**

Matias Ernesto Leandro Flores

Wednesday 9 August 2023 10:30 (15 minutes)

Power Consumption Optimization for LHCb Online and DAQ System

My name is Matías Leandro Flores. I come from San José, Costa Rica. I am currently finishing my bachelor's studies in Electrical Engineering with emphasis on computer hardware at the University of Costa Rica. I like games, binge-watching shows, technology and research.

During my time at CERN I've been working in the EP-LBC department with the LHCb Online Group doing energy efficiency analysis for the servers of the LHCb datacenters.

What I've liked the most as a CERN Summer Student has been to interact with a diverse range of people from all over the world and with different backgrounds, while learning a lot at the same time.

Presenter: LEANDRO FLORES, Matias Ernesto (CERN)

Session Classification: Student Session

Contribution ID: 7

Type: **not specified**

Tomochika Arai

Wednesday 9 August 2023 10:45 (15 minutes)

Alignment in the FASER Experiment

Hello, my name is Tomochika Arai. I completed my bachelor's degree at the University of Tokyo in this April, and now I am studying at the University of Tokyo for a master's degree in physics. I am interested in neutrino, and now I am joining in T2K Experiment in Japan. I like implementing the code (strictly speaking, thinking about how to implement), so, now I am trying to contribute by improving analyze method.

In this summer student program, I worked with the alignment of trackers in FASER experiment. Tracker's Alignment has challenging but rewarding work. I want to share the interestingness of it in my talk.

Other than study, I like playing sports, especially basketball.

Presenter: ARAI, Tomochika

Session Classification: Student Session

Contribution ID: 8

Type: **not specified**

Angelica Aira Araw Ayalin

Wednesday 9 August 2023 11:15 (15 minutes)

Dark Matter Searches: Semi-visible Jets and Emerging Jets with Partial Event Building

Angelica Aira Ayalin is an MS Physics student from the University of the Philippines Diliman. She is a member of the High Energy Physics group and is currently working on jet phenomenology. She obtained her bachelor's degree in Chemical Engineering from the same university and has worked as a product supply manager. Now, her professional goal is to be a Filipina particle physicist and help the Philippines become a CERN Member State.

Presenter: AYALIN, Angelica Aira Araw

Session Classification: Student Session

Contribution ID: 9

Type: **not specified**

Silia Taider

Wednesday 9 August 2023 11:30 (15 minutes)

Introducing Live Visualization for Distributed RDataFrame with Dask

I am Silia from France, currently pursuing my engineering degree in software design and big data.

I recently had the opportunity to contribute to the ROOT team at CERN working on a project to enhance the distributed workflows in the scope of High Energy Physics by developing a feature that allows real-time data representation.

Presenter: TAIDER, Silia

Session Classification: Student Session

Contribution ID: **10**

Type: **not specified**

Hamza Mohamed Darwish Elsayed

Wednesday 9 August 2023 11:45 (15 minutes)

Firmware Design for Particle Timing Measurements in the CMS ETL

Hello, my name is Hamza Elsayed and I'm an electronics engineering student at University of Bahrain. During my summer internship at CERN, I am working on the CMS MIP Timing Detector for the HL-LHC era, in the Data Acquisition Team. Where my responsibility includes designing the firmware for particle timing measurements in the CMS ETL.

Presenter: DARWISH ELSAYED, Hamza Mohamed

Session Classification: Student Session

Contribution ID: 11

Type: **not specified**

Saule Piguleviciute

Thursday 10 August 2023 09:00 (15 minutes)

Optical modelling of an electrostatic device for the CERN low energy antiproton beam lines

I am Saule Piguleviciute from Lithuania; I study Physics and Mathematics in Durham University. In CERN, I work in the Beam Transport Physics section under the supervision of Yann Dutheil and Pablo Arrutia. After finishing my studies in Durham University, I am planning to pursue a PhD in Theoretical Particle Physics and eventually work in academia.

Presenter: FIGULEVICIUTE, Saule

Session Classification: Student Session

Contribution ID: 12

Type: **not specified**

Alexia Alexander Wight

Thursday 10 August 2023 09:15 (15 minutes)

LHCb Simulation Wizard

Alexia Alexander Wight is currently a Master's student at King's College London, specialising in particle physics. She completed her undergraduate studies in physics at Imperial College London, and then trained as a secondary school teacher and taught physics for several years, before coming back to academia to do her masters. Alongside her studies (and previously her teaching) Alexia also is involved in science communication via social media under the handle @missneutrino, and also her graphic design, having worked with clients such as the UK's Institute of Physics.

This summer Alexia has been working with the LHCb simulation team to create a web app that makes it easier for users to access LHCb simulations and decay files. This web app - known as the LHCb Simulation Wizard - greatly reduces the learning curve for accessing this information, lining up with CERN's aim to make all CERN research fully accessible and inclusive.

Presenter: ALEXANDER WIGHT, Alexia (CERN)

Session Classification: Student Session

Contribution ID: 13

Type: **not specified**

Zaina Jamal Sudqi Hurani

Thursday 10 August 2023 09:30 (15 minutes)

CMS iRPC Assembly and Quality Control

Having earned my Bachelor's in General Physics less than a week before arriving at CERN, I was not expecting to contribute much to the world's largest Physics Laboratory. Two months later, I have worked on 20 new detectors to be installed at the HL-LHC.

In my presentation, I will guide you through my journey, hoping to translate my gratitude to the CMS iRPC team, and to motivate all students considering a career at CERN.

As my experience here at CERN has come to an end, I am on my way to starting my Master's in Nuclear Medical Engineering in France, confident in my ability to transfer everything I learned about radiation and detectors to the Medical field. Even though I concluded my summer school program, I am confident that my paths will lead me to CERN again in the near future.

Presenter: HURANI, Zaina Jamal Sudqi

Session Classification: Student Session

Contribution ID: 14

Type: **not specified**

Zubeyde Civelek

Thursday 10 August 2023 09:45 (15 minutes)

BCSPILLGUI - SPS SPILL GUI

My name is Zübeyde Civelek, and I am a passionate computer engineering student from Turkey. Currently, I am studying at Hacettepe University and have completed my 3rd year. I am eagerly looking forward to graduating in June 2024. Throughout my time at university, I have actively participated in various engineering competitions, collaborating with talented teams on exciting projects. These experiences have not only enhanced my technical skills but also fostered teamwork and problem-solving abilities. One of the highlights of my academic journey has been the opportunity to join CERN as a summer student. At CERN, I have been involved in a multidisciplinary work, diligently contributing to the development of the SPS SPILL GUI. This experience enabled me to collaborate with professionals from diverse scientific backgrounds.

Looking ahead, I am excited about the opportunities that lie ahead in my journey as a computer engineer. I am eager to continue exploring new challenges, contributing to innovative projects, and making a meaningful difference in the world through my work.

Presenter: CIVELEK, Zubeyde

Session Classification: Student Session

Contribution ID: 15

Type: **not specified**

Jeltje Boschman

Thursday 10 August 2023 10:15 (15 minutes)

RF python toolbox

My name is Jeltje Boschman and I was born on one of the little islands in the north of the Netherlands. I eventually moved to Nijmegen to do a double bachelors in mathematics and physics at the Radboud university. Currently I am halfway through my masters in theoretical particle physics and I will start my master thesis after the summer.

At CERN I work for the radiofrequency and beam department under the great supervision of Michela Neroni and Michael Sullivan. I am building a toolbox of python codes, with the goal of creating an easy to use, consistent and well-documented set of codes for the department to use. The codes that I work with are mainly impedance calculations and other post processing codes. So far I have learned a lot of new theory and had some fun practice and challenges in coding. But besides the interesting physics these past few weeks have been a great way to learn what it is like to work in academia and at such a great institute as CERN. It has made me really excited to find out what my future as a physicist will entail after I finish my masters.

Presenter: BOSCHMAN, Jeltje

Session Classification: Student Session

Contribution ID: 16

Type: **not specified**

Hadhami Elouni

Thursday 10 August 2023 10:30 (15 minutes)

Contact and project management application

I am ELouni Hadhami, an ambitious software engineering student with a passion for technology and a love for design. I earned my bachelor's degree in computer science with the highest honors from the Faculty of Science at Tunis, University of Tunis El Manar, in 2021. Currently, I am pursuing a software engineering diploma at the same university.

Over the past five years, I have immersed myself in the world of computer science, gaining expertise in various programming languages and creating web and mobile applications.

Beyond my academic pursuits, I actively participate in university life. I am an official IEEE member and am actively involved in the theater club.

At CERN, I am currently working with the EAM team on the CMS experiment, collaborating with ambitious individuals dedicated to software development. I am thrilled to be a part of this team.

In summary, I am a software engineering student committed to leveraging my skills and knowledge to make a positive impact in the world of technology.

Presenter: ELOUNI, Hadhami

Session Classification: Student Session

Contribution ID: 17

Type: **not specified**

Tianze Rong

Thursday 10 August 2023 10:45 (15 minutes)

Measurement of Λ EMD/MDM using LHCb data

I am Tianze Rong (荣天泽) from Beijing, China. I just got my bachelor's degree in astronomy from School of Physics, Peking University, before I came to CERN. During the summer student programme, I have been working on measurement of Λ EDM/MDM at LHCb. Though I had some experience in LHCb experiment before, this project indeed broadens my horizons, and shows me the possibility and opportunity of LHCb.

After the programme, I will start my PhD in experimental high energy physics at Peking University. The experience at CERN is a treasure for me and a good start of my future study.

Presenter: RONG, Tianze (School of Physics State Key Laboratory of Nuclear Physics and Technology, Peking University, Beijing)

Session Classification: Student Session

Contribution ID: **18**

Type: **not specified**

Uku Luhari

Thursday 10 August 2023 11:15 (15 minutes)

The ATLAS Technical Coordinaton WAterLeakDetection project

I am Uku Luhari from Estonia and I finished my bachelors in Materials Engineering in Tallinn Universty of Technology just before my arrival to CERN. At CERN, I am working in the Atlas DSS team, on the water leak detection project.

Presenter: LUHARI, Uku

Session Classification: Student Session

Contribution ID: **19**

Type: **not specified**

Aniq Javed

Thursday 10 August 2023 11:30 (15 minutes)

Integration of code coverage with CI/CD of ROOT

I am a summer student from Pakistan. I completed my bachelor's degree just a week before joining CERN. Currently, I am working in the EP-SFT Department on the CI/CD pipeline of ROOT. The most remarkable aspect of this program is its international nature, allowing you to interact with people from across the world.

Presenter: JAVED, Aniq (Summer Student)

Session Classification: Student Session

Contribution ID: **20**

Type: **not specified**

Nicholas Jason Kurth

Thursday 10 August 2023 11:45 (15 minutes)

Performance of ME0 Detectors in Test Beam

Education:

- Attend Rowan University, located in Glassboro, New Jersey
- Will be graduating in spring 2024 with a Bachelors of Science in Physics
- At Rowan, I research biophysics and reverse micelles
- After undergraduate, I plan on attending graduate school in hopes of obtaining my PhD in physics (or some field related to it)

CERN Summer Student:

- Here from June 10th to August 13 (first time leaving abroad)
- I work on GEM detectors, which are muon detectors located at the endcaps of CMS

Presenter: KURTH, Nicholas Jason

Session Classification: Student Session

Contribution ID: 21

Type: **not specified**

Rim Ghanim

Friday 11 August 2023 09:00 (15 minutes)

POLAR-2

Afeka College of Engineering, Israel

Bachelor in Mechanical Engineering, minor in Flow and Energy and Mechatronics - Robotics I am a huge space lover. Back home, I have a space club, worked with people from the space industry, such as The Ramon Foundation and Israel Space Agency, and participated in different challenges like IAI (Israel Aerospace Industries) space challenge and NASA's International Space Apps challenge.

Here at CERN, I work on a space-related project called POLAR-2, a next-generation GRBs polarimeter, under the supervision of Merlin Kole. My time at CERN has been incredible. I've met many amazing people, and this once-in-a-lifetime opportunity has been unforgettable.

Presenter: GHANIM, Rim

Session Classification: Student Session

Contribution ID: 22

Type: **not specified**

Jenan Z M Amer

Friday 11 August 2023 09:15 (15 minutes)

Single diodes for HGCAL

Hello, I'm Jenen Amer –a dedicated bachelor Physics student at An Najah National University, Palestine. My journey has led me to an exhilarating summer experience here at CERN, where I'm immersed in the captivating realm of particle physics, collaborating with some of the brightest minds worldwide.

Growing up in Palestine, I've been driven by a profound curiosity for the universe's intricacies, motivating me to pursue my passion relentlessly. As a summer student at CERN, I'm fulfilling a dream by contributing to EP-DT-TP section under the HGCAL project, conducting essential electrical characterisation measurements on single-diodes for the new high granularity calorimeter of CMS 'HGCAL'. These past eight weeks have been nothing short of extraordinary, solidifying my belief that unwavering curiosity and dedication can shatter the boundaries of knowledge. My ultimate goal is to inspire others, proving that regardless of background or circumstances, the pursuit of knowledge knows no limits.

Presenter: AMER, Jenan Z M

Session Classification: Student Session

Contribution ID: 23

Type: **not specified**

Victoria Ramos

Friday 11 August 2023 09:30 (15 minutes)

VELO DCS summary panel: the VELO readiness to take data at a glance

My name is Victoria Ramos de Oliveira, I am 25 years old and came from Brazil. I have a bachelor degree in Physics and currently I'm in the 2nd year of my Master's, with the expectation to finish in September 2023, in the Pontifical Catholic University of Rio de Janeiro. During my undergraduate studies I have worked with Condensed Matter Physics and Quantum Field Theory. My Master's project is in High Energy Experimental Physics, more specifically in the search for Charge-Parity Violation on charged D meson in the LHCb Experiment. During this Summer my project was on LHCb as well, but with a different approach, more directly related to the detectors.

My project was the creation of a summary panel, the VELO DASHBOARD, that shows all the status of the electronics, from the low voltage to the data acquisition board.

Presenter: RAMOS, Victoria (CERN)

Session Classification: Student Session

Contribution ID: 24

Type: **not specified**

Valdis Slokenbergs

Friday 11 August 2023 09:45 (15 minutes)

Recoil uncertainty in top quark mass

Valdis Slokenbergs

Johns Hopkins University, Baltimore MD, USA

B.S. in Physics. Minor in Mathematics, German. Anticipated Spring 2024.

My experience in high energy physics has been conducted exclusively as part of the CMS experiment. I have worked since 2021 on Higgs anomalous couplings under Prof. Andrei Gritsan. This summer, however, I am part of the CMS Latvia group, working under Dr. Markus Seidel and Dr. Pedro Silva on top quark mass uncertainty. I am forward to pursuing a PhD and continue research in the world of HEP. As an aside, I find it quite fitting that I have ended up here at CERN. I grew up next to a particle physics lab in a town called Geneva, and now I am working at a different particle physics lab next to a different city also called Geneva.

Presenter: SLOKENBERGS, Valdis Roberts

Session Classification: Student Session

Contribution ID: 25

Type: **not specified**

Matyas Draskovits

Friday 11 August 2023 10:15 (15 minutes)

Instantons

I am starting my fourth and final year of MPhys at Durham University, United Kingdom, in theoretical physics.

At Durham, I am lucky to have Valentin Khoze as supervisor, who is working on the theory of instantons. Here at CERN, I am working on improving the detection of the experimental signature of instanton events at forward proton detectors.

In my free time, I enjoy reading about the question of consciousness and its relation to different scientific fields.

Presenter: DRASKOVITS, Matyas

Session Classification: Student Session

Contribution ID: 26

Type: **not specified**

Daniela Beatriz Cabral Cardoso

Friday 11 August 2023 10:30 (15 minutes)

CMS HGCAL Train on Track for Particle Detection

I am Daniela, currently pursuing a Master's degree in Physics Engineering at Instituto Superior Técnico in Lisbon. I completed my Bachelor's degree at the same university. In my academic journey, I have focused on studying Jet quenching effects in QGP and High Harmonic Generation in solids, particularly optics and lasers.

During this summer, my efforts have been dedicated to an enriching internship at CERN, where I've been engaged with the CMS HGCAL for the LHC Phase 2 project. Specifically, I have been an active member of the Backend Electronics group, working under the guidance of Dr André David and Mehmet Alp Sarkisla.

As my time at CERN reaches its midway point, there remains a substantial amount of work ahead, along with ample opportunities for me to make meaningful contributions. I've found immense value in the camaraderie of the exceptional group I am privileged to work with. Their cooperation and support have been invaluable. Additionally, this experience has provided me with remarkable learning opportunities and the chance to partake in a beam test. Upon the conclusion of the summer, my plan is to return to my institute and embark on the journey of crafting my Master's thesis.

Presenter: CABRAL CARDOSO, Daniela Beatriz

Session Classification: Student Session

Contribution ID: 27

Type: **not specified**

Hunter Sharron

Friday 11 August 2023 10:45 (15 minutes)

Data Analysis - ATLAS ITk

My name is Hunter Sharron, I am from Toronto, Canada. I currently study Physics at McMaster University and I am going into my fourth year of study. I work with the ATLAS ITK group from the University of Toronto at CERN, my main contribution to the collaboration has been data analysis of readout thresholds of ASIC chips and data analysis on some ATLAS data from 2016. After finishing my undergrad I plan on attending graduate for theoretical physics, in which field I am still unsure of, but my time at CERN has definitely piqued my interest more in particle physics.

Presenter: SHARRON, Hunter (University of Toronto)**Session Classification:** Student Session

Contribution ID: 28

Type: **not specified**

Noe Tepec Tinoco

Friday 11 August 2023 11:15 (15 minutes)

New eco-friendly gas mixture studies for Resistive Plate Chambers in CMS in the environment of phase-II of LHC

I am Noe Tepec Tinoco, a Physics Master Student at Mexico. Since 2020 I have been working with the leader of the Mexican CMS group in Heavy Flavour Physics Analyses, mostly developing Python scripts and Machine Learning techniques to make a classifier to separate signal and background events coming from an experimental decay channels. At CERN I have been participating on the assembly of the next generations of RPCs (which I had no experience with) as well as some data analysis. I am excited for the future of physics and open to try new things and learn as much as I can.

Presenter: TEPEC TINOCO, Noe

Session Classification: Student Session

Contribution ID: 29

Type: **not specified**

Lance Lampert

Friday 11 August 2023 11:30 (15 minutes)

Photodetachment of H⁻ at the GBAR experiment

My name is Lance Lampert. I am a Physics and Math major at the Georgia Institute of Technology in Atlanta, USA, entering my last year of undergraduate studies. My previous research experience includes simulations of super-resolution microscopy of 2D materials at the University of Michigan, precise theoretical modelling of open quantum systems, and experimental demonstrations of ion-trap quantum computing hardware.

I am looking forward to the opportunities graduate studies in theoretical particle physics will present me in the upcoming years. My lifetime goal is to make a living playing with equations. In my spare time, I enjoy listening to music and DJ-ing.

Presenter: LAMPERT, Lance

Session Classification: Student Session

Contribution ID: **30**

Type: **not specified**

Dairis Rihards Irbe

Friday 11 August 2023 11:45 (15 minutes)

Design of support structure for nozzle components in the heavy ion therapy gantry

Education: Currently studying mechanical engineering at the Riga Technical University, Latvia, at bachelor's level.

From young age my passion has been engineering, starting from radio-controlled plane building to robotics and electronics. Currently I'm proud to teach robotics and mechatronics at my hometown school, sharing my passion to others. Working here at CERN has been one of my dreams for long time and it's hard to express my happiness about actually being here and working together with so knowledgeable and nice people. Also, I'm a huge space enthusiast.

Presenter: IRBE, Dairis Rihards

Session Classification: Student Session