ZHAMILYA SAPAROVA

zhamilya.saparova@gmail.com ◇ zhamilya-saparova ◇ @zhamilyaa ◇ zhamilyaa.github.io

EDUCATION

Nazarbayev University *Astana, Kazakhstan*
Master of Science in Data Science Aug 2022 - Jun 2024 (Expected)
Bachelor of Science in Robotics and Mechatronics Aug 2018 - Jun 2022

EXPERIENCE

Research Assistant Dec 2022 - Present
Nazarbayev University, *The New Paradigm Computing Laboratory* *Astana, Kazakhstan*

Biomedical Image Classification using Meta-Learning under Prof.Martin Lukac

- Developed machine learning algorithms on diverse biomedical image datasets, mitigating the challenges posed by dataset scarcity and reaching **accuracy 99.5%** in brain tumor classification using **algorithm selection**.
- Performed feature extraction of biomedical images with pre-trained VGG-16, VGG-19, ResNet50.

  Tech stack: Python, Scikit-learn, Tensorflow, Keras, Pytorch, Matplotlib, Numpy

Research Assistant May 2023 - Aug 2023
Aalto University, *Aalto Astroinformatics Group* *Espoo, Finland*

Pattern Recognition from Large-Scale Data from Multi-Physics Simulations under Prof.Maarit Korpi-Lagg

- Augmented 3D data cubes from simulation to amplify training set for vortex recognition and detection.
- Built a specialized 3D Convolutional Neural Network (CNN) model on Keras and Pytorch for vortex detection.
- Expanded neural network capacity by adding new layers and achieved an impressive **R2 score of above 0.95** and a low **Mean Absolute Percentage Error (MAPE) value of 0.002**.

  Tech stack: Python, C, Pencil Code, Pytorch, Keras, Scipy, Numpy, Scikit-Learn, Matplotlib

Research Assistant Jan 2022 - Dec 2022
Nazarbayev University, *Astana LAboratory for Robotic and Intelligent Systems (ALARIS)* *Astana, Kazakhstan*

Robotized Object Recognition and Pick-and-Place Operations under Prof.Almas Shintemirov

- Employed YOLOv5 and ConvNet using to detect object location in occluded region and grasp object enabling robotic manipulation and achieved **grasp confidence 92%**.
- Integrated the system with Robot Operating System (ROS) using Gazebo simulation.

  Tech stack: Python, C++, MATLAB, ROS, Yolo, Matplotlib, Pillow, OpenCV, Rospy, Gazebo, MoveIt

Data Scientist May 2021 - Jan 2022
EGISTIC, *Farm Management System* *Astana, Kazakhstan*

Super-Resolution based on Generative Adversarial Network (GAN)

- Pre-processed radar and multi-spectral satellite images using Sentinel Application Platform (SNAP).
- Achieved a **four-fold increase in pixels per inch** on Super Resolution Generative Adversarial Network (SRGAN) using transfer learning.
- Developed a pipeline for the project, utilizing Docker container and deploying it to production. Created **high resolution map for Kazakhstan and Ukraine regions** in system.

  Tech stack: Python, Docker, Celery, Tensorflow, Rasterio, Shapely, Geopandas, SNAP

ACHIEVEMENTS

- "Algorithm Selection with Priority Order for Instances" accepted at NeurIPS Workshop on Attributing Model Behavior at Scale 2023, New Orleans, USA
- "Pattern Recognition from Large-Scale Data from Multi-Physics Simulations" accepted at Machine Learning Summer School 2024 in Okinawa, Japan

PROJECTS

Video-based Face Recognition Spring, 2023

- Developed a system for automatic face recognition in video streams using state-of-the-art Multi-Task Cascaded Convolutional Neural Networks (MTCNN).
- Optimized two popular face recognition algorithms, VGGFace and FaceNet, using hyperparameter tuning to enhance their performance within the system.

Enhancing and Colorizing Infrared Images in Low Light Conditions Spring, 2021

- Applied Dehazing algorithm and Brightness Preserving Dynamic Histogram Equalization (BDPHE) methods to enhance RGB images.
- Outperformed above-mentioned algorithms by colorizing near-infrared (NIR) images using MATLAB.

NAZARBAYEV UNIVERSITY

Student Unofficial Transcript

Date: 24 October 2023

Student Name: **Saparova Zhamilya**
Student ID: **201670141**
School: **School of Engineering and Digital Sciences**
Primary major: **Data Science**
Admission semester: **Fall 2022**

Fall 2022

Course Code	Course Title	Grade	Credits ECTS	Grade Points
DS 507	Database Management Systems	C-	6	1.67
DS 501	Fundamentals of Data Science	B+	6	3.33
DS 502	Probability and Statistics for Data Science	B	6	3
DS 551	Process and Project Management	A	6	4
SEDS 591	Research Methods	A	6	4

Semester GPA: 3.20 Credits Enrolled: 30 Credits Earned: 30

Spring 2023

Course Code	Course Title	Grade	Credits ECTS	Grade Points
CSCI 545	Big Data Analytics	B	6	3
CSCI 585	Computer Vision	B	6	3
DS 504	Data Mining and Decision Support	C+	6	2.33
DS 509	Information Retrieval	C	6	2
SEDS 592	Research Seminar	P	6	n/a

Semester GPA: 2.58 Credits Enrolled: 30 Credits Earned: 30

Overall

GPA: 2.93 Credits Enrolled: 60 Credits Earned: 60

* - not included in calculation of the GPA or in earned credits.

----------END OF TRANSCRIPT----------

«НАЗАРБАЕВ УНИВЕРСИТЕТІ»
ДЕРБЕС БІЛІМ БЕРУ
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Регистратор офисі
Ресми транскрипт

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NAZARBAYEV
UNIVERSITY

THE AUTONOMOUS
ORGANIZATION OF EDUCATION
NAZARBAYEV UNIVERSITY

Office of the Registrar
Official Transcript

№ 5916

Student Name: Zhamilya Saparova
ID# 201670141
School: School of Engineering and Digital Sciences
Program: Bachelor of Science in Robotics and Mechatronics
Primary Major: Robotics and Mechatronics
Admission semester: Fall 2018

Fall 2018		Grd	ECTS	QPts
MATH 161	Calculus I	A-	8	3.67
HST 100	History of Kazakhstan	C-	6	1.67
PHYS 161	Physics I for Scientists and Engineers with Laboratory	B	8	3
CSCI 151	Programming for Scientists and Engineers	F**	8	0

Semester AttCr: 30 Cr: 22 GPA: 2.11 | Cumulative Cr: 22 GPA: 2.11

Spring 2019		Grd	ECTS	QPts
MATH 162	Calculus II	C	8	2
PHYS 162	Physics II for Scientists and Engineers with Laboratory	B+	8	3.33
CSCI 151	Programming for Scientists and Engineers	B	8	3
SHSS 150	Rhetoric and Composition	B+	6	3.33

Semester AttCr: 30 Cr: 30 GPA: 2.89 | Cumulative Cr: 52 GPA: 2.88

Summer 2019		Grd	ECTS	QPts
CSCI 152	Performance and Data Structures	D+	8	1.33

Semester AttCr: 8 Cr: 8 GPA: 1.33 | Cumulative Cr: 60 GPA: 2.68

Fall 2019		Grd	ECTS	QPts
ROBT 203	Electrical and Electronic Circuits I with Lab	B-	8	2.67
KAZ 364	Kazakh for Civil Service	B+	6	3.33
MATH 273	Linear Algebra with Applications	C+	8	2.33
ROBT 201	Mechanics: Statics and Dynamics	A-	6	3.67
ROBT 205	Signals and Sensing with Lab	B+	8	3.33

Semester AttCr: 36 Cr: 36 GPA: 3.02 | Cumulative Cr: 96 GPA: 2.81

Spring 2020		Grd	ECTS	QPts
SHSS 250	Advanced Rhetoric and Composition	B	6	3
ROBT 204	Electrical and Electronic Circuits II with Lab	SD	8	n/a
MATH 274	Introduction to Differential Equations	B-	6	2.67
ROBT 206	Microcontrollers with Lab	SD	8	n/a
ROBT 202	System Dynamics and Modeling	A-	6	3.67

Semester AttCr: 34 Cr: 34 GPA: 3.11 | Cumulative Cr: 130 GPA: 2.85

Fall 2020		Grd	ECTS	QPts
ROBT 303	Linear Control Theory with Lab	A	8	4
ROBT 407	Machine Learning with Applications	B+	6	3.33
ROBT 301	Mechanical Design with CAD and Machining Laboratory	B+	8	3.33
KAZ 368	Onomastics: History and Function of Names	A	6	4
MATH 321	Probability	B	6	3

Semester AttCr: 34 Cr: 34 GPA: 3.55 | Cumulative Cr: 164 GPA: 3.01

Spring 2021		Grd	ECTS	QPts
BUS 101	Core Course in Business	A-	6	3.67
ROBT 304	Electromechanical Systems with lab	A-	8	3.67
PHIL 210	Ethics	B	6	3
ROBT 310	Image Processing	A-	6	3.67
ROBT 312	Robotics I: Kinematics and Dynamics	A	6	4

Semester AttCr: 32 Cr: 32 GPA: 3.61 | Cumulative Cr: 196 GPA: 3.12

Summer 2021		Grd	ECTS	QPts
ROBT 399	Internship	P	6	n/a

Semester AttCr: 6 Cr: 6 GPA: 0.0 | Cumulative Cr: 202 GPA: 3.12

Fall 2021		Grd	ECTS	QPts
ROBT 414	Human-Robot Interaction	B+	6	3.33
PLS 140	Introduction to Comparative Politics	B+	6	3.33
PHYS 201	Introductory Astronomy I	B-	6	2.67
ROBT 403	Robotics II: Control, Modeling and Learning with Laboratory	A-	8	3.67

Semester AttCr: 26 Cr: 26 GPA: 3.28 | Cumulative Cr: 228 GPA: 3.14

Spring 2022		Grd	ECTS	QPts
CSCI 333	Computer Networks	D+	6	1.33
ROBT 491	Graduation Project	A	6	4
PHYS 202	Introductory Astrophysics	C+	6	2.33
ROBT 402	Robotic/Mechatronic System Design	A-	6	3.67

Semester AttCr: 24 Cr: 24 GPA: 2.83 | Cumulative Cr: 252 GPA: 3.11

Cumulative GPA: 3.11
Bachelor of Science in Robotics and Mechatronics
DEGREE CONFERRED JUNE 2022

** - not included in calculation of the GPA or in earned credits.*
*** - not counted into CGPA.*

Due to COVID-19, optional SD (Satisfactory Disruption) and UD (Unsatisfactory Disruption) grades were implemented. SD and UD do not count to CGPA and GPA. SD is used for "C-" and above. SD fulfills degree and requisite requirements.

----------END OF TRANSCRIPT----------

26-05-2022 14:55:44

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Қауымдастырылған регистратор/
Associate Registrar

Салтанат Бейсембина / Saltanat Beisembina

Лауазымы Position — Қолы Signature — Т.А.Ә. Full Name

OFFICE OF THE REGISTRAR, NAZARBAYEV UNIVERSITY

53, Kabanbay batyr ave., Nur-Sultan city, Republic of Kazakhstan, 010000, registrar@nu.edu.kz

KEY TO TRANSCRIPT GRADES AND SYMBOLS

GENERAL INFORMATION

The autonomous organization of education Nazarbayev University (hereinafter – University) was granted autonomous status by the special national legislation. Its activity is regulated by the Law of the Republic of Kazakhstan dated January 19, 2011 "On the status of "Nazarbayev University", "Nazarbayev Intellectual Schools" and "Nazarbayev Fund". The educational process of the University is built on the basis of its own educational standards in collaboration with global partner universities.

ACADEMIC CALENDAR

The academic year varies between programs and generally consists of Fall, Spring semesters and one condensed Summer term.

Doctor of Medicine: Academic year consists of intensive courses which run daily, along with longitudinal courses which run once a week and are marked with asterisk.

CREDIT

The unit of measure for academic purposes is ECTS (the European Credit Transfer and Accumulation System)* – a quantified means of expressing the volume of learning based on the workload students need in order to achieve the expected outcomes of a learning process at a specified level.

Doctor of Medicine: Courses are measured in weeks.

GRADING SYSTEM

Applicable to 1) undergraduate students 2) graduate students before Fall 2020

Letter Grade	Definition	Quality Points	Used in GPA
A	Excellent	4.00	Yes
A-	Excellent	3.67	Yes
B+	Very good	3.33	Yes
B	Good	3.00	Yes
B-	More than adequate	2.67	Yes
C+	Acceptable	2.33	Yes
C	Acceptable	2.00	Yes
C-	Acceptable	1.67	Yes
D+	Minimally acceptable	1.33	Yes
D	Minimally acceptable	1.00	Yes
F	Fail	0.00	Yes

Applicable to graduate students starting from Fall 2020

Letter Grade	Definition	Quality Points	Used in GPA
A	Excellent	4.00	Yes
A-	Excellent	3.67	Yes
B+	Very good	3.33	Yes
B	Good	3.00	Yes
B-	More than adequate	2.67	Yes
C+	Acceptable	2.33	Yes
C	Acceptable	2.00	Yes
C-	Acceptable	1.67	Yes
F	Fail	0.00	Yes

GRADUATE SCHOOL OF BUSINESS

Applicable to students enrolled before Fall 2020

Letter Grade	Definition	Quality Points	Used in GPA
SP	Superior Pass	4.00	Yes
HP	High Pass	3.50	Yes
P	Pass	3.00	Yes
LP	Low Pass	2.50	Yes
F	Fail	0.00	Yes

DOCTOR OF MEDICINE

Letter Grade	Definition	Quality Points	Used in GPA
PH	Pass with Honors	N/A	No
P	Pass	N/A	No
F	Fail	N/A	No

ADMINISTRATIVE GRADES

Letter Grade	Definition	Quality Points
PD	Pass with Distinction**	N/A
P/F	Pass/Fail***	N/A
AU	Audit	N/A
I	Incomplete	N/A
IP	In Progress	N/A
IPS	In Progress Satisfactory	N/A
IPU	In Progress Unsatisfactory	N/A
W	Withdrawal	N/A
AW	Administrative Withdrawal	N/A
TC	Transfer credit	N/A

GRADE POINT AVERAGE (GPA)

University uses a 4-point grading system. Student's GPA is calculated by multiplying the number of credits by the numeric value of the grade for each course. The sum of the grade points is then divided by the total graded credits attempted.

ACADEMIC STANDING

Student who fails to maintain Good Academic Standing based on GPA will be placed on an Academic Probation. At the end of academic probation period, students are subject to dismissal from the University if they have not achieved necessary conditions.

LEAVE OF ABSENCE

Student on a Leave of Absence for extraordinary circumstances that prevent the student from continuing classes will be withdrawn from all currently registered courses.

TRANSFER OF CREDITS

Credits for courses taken at other accredited higher education institutions in Kazakhstan or abroad can be transferred to students' University record with "TC" grade. Transferred credit is given only for courses with specified grade or above, no grade is transferred.

TRANSCRIPTS FROM OTHER INSTITUTIONS

University does not issue copies of transcripts or other documents received from other institutions.

ABBREVIATIONS AND DEFINITIONS

GPA	Grade Point Average
Semester GPA	GPA for one particular semester
Cumulative GPA (CGPA)	GPA based on grades from all courses taken from the beginning of study for each degree
AttCr (Attempted credits)	The total number of credits which the student was registered for at the beginning of the semester
Cr (Credit)	The number of earned credits

DEGREE HONORS DESIGNATION

Undergraduate programs

Distinction – 4.00 CGPA;
Summa Cum Laude – 3.90 CGPA and above;
Magna Cum Laude – 3.80 CGPA and above;
Cum Laude – 3.67 CGPA and above.

Master programs

Distinction – 4.00 CGPA;
Graduated with Honors – top 10% of students from each program.

Transcripts in any of Kazakh, Russian and English languages have the equal legal validity. Transcripts of the University are considered official only when they include official stamp of the Office of the Registrar and signature of the Registrar or an authorized person of the University. The language of instruction at the University is English except for the Bachelor in Nursing program.

* ECTS Users Guide, Luxembourg Office of Official Publications of the European Community, 2009

** Applicable not for all programs

*** Applicable for P/F courses only

13 07 2022 ж/е. Мен, Смаилова Индира Маратовна, Қазақстан Республикасы Әділет министрлігімен 15.08.2014 жылы берілген мемлекеттік лицензия № 14011810, Нұр-Сұлтан қаласының жеке нотариусы осы көшірменің құжат түпнұсқасымен дұрыстығын куәландырамын. Соңғысында тазартылып өшірілген, қосылып жазылған, сызылған сөздер және өзге де келісілмеген түзетулер немесе қандай да бір ерекшеліктер болған жоқ.

Я, Смаилова Индира Маратовна, частный нотариус города Нур-Султан, государственная лицензия № 14011810, выдана Министерством юстиции Республики Казахстан 15.08.2014 года, свидетельствую верность этой копии с подлинником документа. В последнем подчисток, приписок, зачеркнутых слов и иных неоговоренных исправлений или каких-либо особенностей не оказалось.

Тізілімде тіркелді/Зарегистрировано в реестре за № 3121

Өндірілді/Взыскано: _____

Нотариус: _____

ПРОШНУРОВАНО И ПРОНУМЕРОВАНО
_____ НӨМІРЛЕНІП ТІГІЛДІ
На _____ (_____) парақта
листах
Нотариус/notary Смаилова И.М.

EC620564622071311055 9E454625

Нотариаттық іс-әрекеттің бірегей нөмірі / Уникальный номер нотариального действия

deeplearning.ai

COURSE CERTIFICATE

06/29/2020

Zhamilya Saparova

has successfully completed

Introduction to TensorFlow for Artificial Intelligence, Machine Learning, and Deep Learning

an online non-credit course authorized by deeplearning.ai and offered through Coursera

Laurence Moroney

Laurence Moroney
Staff AI Advocate
Google Brain

Verify at coursera.org/verify/8XRNN4QC3DQP

Coursera has confirmed the identity of this individual and their participation in the course.

UNIVERSITY OF MICHIGAN

COURSE CERTIFICATE

Jul 19, 2020

Zhamilya Saparova

has successfully completed

Introduction to HTML5

an online non-credit course authorized by University of Michigan and offered through Coursera

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Colleen van Lent, Ph.D.
Lecturer
School of Information, University of Michigan

Charles Severance
Clinical Professor, School of Information
University of Michigan

Verify at coursera.org/verify/PP7B3P4RC4BA

Coursera has confirmed the identity of this individual and their participation in the course.

coursera project network

Sep 19, 2020

Zhamilya Saparova

has successfully completed

Logistic Regression with NumPy and Python

an online non-credit course authorized by Coursera Project Network and offered through Coursera

Snehan Kekre
Instructor
Machine Learning and Data Science

COURSE CERTIFICATE

Verify at coursera.org/verify/BB78TAWN5L3P

Coursera has confirmed the identity of this individual and their participation in the course.

INNOPOLIS UNIVERSITY

Innopolis,
December 7-10
2020

Certificate of Participation

this is to certify that

Zhamilya Saparova

has attended the 16 - hour
International Winter School on Machine learning in Robotics held Online

A. S. Klimchik
Director of the Institute
of Robotics and Computer Vision

Duke
UNIVERSITY

COURSE
CERTIFICATE

07/09/2020

Zhamilya Saparova

has successfully completed

Data Science Math Skills

an online non-credit course authorized by Duke University and offered through Coursera

EDUCATION FOR EVERYONE
coursera
COURSE CERTIFICATE

Daniel Egger
Executive in Residence and Director,
Center for Quantitative Modeling
Pratt School of Engineering

Paul Bendich
Assistant research professor of Mathematics
Associate Director for Curricular Engagement at the Information Initiative at Duke
Mathematics

Verify at coursera.org/verify/AK3E7G2X5QGE

Coursera has confirmed the identity of this individual and their participation in the course.

udemy

Certificate no: UC-b861ea82-0e38-4c39-abde-7cd95b048997
Certificate url: ude.my/UC-b861ea82-0e38-4c39-abde-7cd95b048997
Reference Number: 0004

CERTIFICATE OF COMPLETION

PyTorch for Deep Learning with Python Bootcamp

Instructors **Jose Portilla**

Zhamilya

Date **Aug. 17, 2021**
Length **17 total hours**