MUNKHBAYAR Bat-Erdene

DEGREE: Doctor (Ph.D)
SCHOOL, DEPARTMENT: Mongolian University of Science and Technology(MUST),
                         School of Information and Communication Technology
                         (SICT), Information networks and security
POSITION: Information Network and Security Sector Manager

INTERESTS: Football, Swimming, Wrestling, Aeronautics and Airplanes

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✍ Add: No. 310, MUST, SICT, Department of Information Network and Security,
   Ulaanbaatar, Mongolia

RESEARCH WORK ENVIRONMENT

- Ethical Hacking
- Malware analysis (Dynamic and Static)
- Network Security
- Computer network system
- Software Vulnerability Detection
- Exploit, exploit writing
- Botnet and DDoS attack
- System Security
- IoT Security
- Cryptograph

SUMMARY

- 22 years of experience in teaching methods, lectures, readings and management
- Ability to organize the activities and support of apprentice teachers, teachers and senior teachers
- Self-motivated, hard-working and efficient.
- Has communication skills to organize training
- Ability to speak and write in Korean, English, and Russian
- Has been working at MUST for a total of 22 years.
- First member of "Robocon", 2001, MUST, CSMS(Computer Science and Management School)

PROFESSIONAL EXPERIENCE

Head of Department: In February 2022 - Present, the Department of Information Networking and Security, School of Information Communication and Technology, Mongolian University of Science and Technology

- Responsible for developing and implementing bachelor's degree curriculum for Cybersecurity program and Computer Network
- Responsible for developing course contents and training materials for courses in Information system security and Network technology programs
- Responsible for teaching courses in Information system security and Network technology programs
- Responsible for supervising bachelor and master students' thesis
- Responsible for advising the students of Class 2+2 in Cyber security program

Associate Professor: In March 2019, the School of Information Communication and Technology, Department of Information Network and Security of the Mongolian University of Science and Technology

- Responsible for developing and implementing bachelor's degree curriculum for Cybersecurity program
- Responsible for developing course contents and training materials for courses in Information system security and Network technology programs
- Responsible for teaching courses in Information system security and Network technology programs
- Responsible for supervising bachelor and master students' thesis
- Responsible for advising the students of Class 2018 in Information system security program

Senior Lecturer: In 2017-2019, Department of Information Networking and Security, School of Information Communication and Technology, Mongolian University of Science and Technology

- ✧ Responsible for developing course contents and training materials for courses in Information system security and Network technology programs
- ✧ Responsible for teaching courses in Information system security and Network technology programs
- ✧ Responsible for supervising bachelor and master students' thesis

Senior Lecturer: 2004-2008 School of Computer Science and Management (CSMS) of the Mongolian University of Science and Technology

- ✧ Responsible for developing course contents and training materials for courses in Computer Hardware and Management Information System program
- ✧ Responsible for teaching courses in Computer Hardware and Management Information System program
- ✧ Responsible for advising the students of Class 2003 in Management Information System program
- ✧ Worked as a computer hardware team instructor
- ✧ 4 as teaching assistants, 5 developed lesson content and lesson standards
- ✧ Improved the quality of the program and gave recommendations to the main and assistant teachers
- ✧ During the academic year, played a key role in training, lectures, preparation tests, lectures and laboratories of 40 to 90 students at a high level of quality.

Lecturer: From January 2003 to September 2004, School of Computer Science and Management, University of Science and Technology, Ulaanbaatar, Mongolia

- ✧ Responsible for developing course contents and training materials for courses Management of Information System program
- ✧ Responsible for teaching courses in in Management Information System program
- ✧ Played the main role of lectures in the academic year, preparation of preparatory tests, training up to 200 students in a semester, awarding high quality degrees.
- ✧ First member of "Robocon", 2001, MUST, CSMS
- ✧ Initiated student social activities such as "Robocon".
- ✧ Awarded the Best Teacher of 2003

Assistant Lecturer: In 2002-2003, School of Computer Science and Management of MUST, Ulaanbaatar, Mongolia

- ✧ Assistant Head Teacher
- ✧ Plans and prepares weekly lectures
- ✧ Test preparation, assignments, final exam tests and keys
- ✧ Mentored up to 100 students in overlapping numbers per academic year

FUNDAMENTALS OF EDUCATION

September 1986 - June 1996:	**High School**, School No. 84, Ulaanbaatar, Mongolia
September 1996 - June 2001:	**Bachelor, №21644**, School of Computer Science and Management, University of Science and Technology, Ulaanbaatar, Mongolia
September 2001 - June 2002:	**Master's degree, E200216159**, School of Computer Science and Management, University of Science and Technology, Ulaanbaatar, Mongolia
September 2008 – June 2009:	**Korean Language Course**, Seoul National University, Seoul, South Korea
September 2009 – August 2017:	**Computer Science Ph.D**. Korea University, Seoul, South Korea / Information Security /
September 2017 – February 2019:	**Senior Lecturer**. Mongolian University of Science and Technology, School of Information and Communication Technology
March 2019 – January 2022:	**Associate Professor**. Mongolian University of Science and Technology, School of Information and Communication Technology
December 2020 - January 2022:	**Teacher Development Team Leader**. Mongolian University of Science and Technology, School of Information and Communication Technology
December 2021 – Present:	**Mongolia Consulting Engineer** "Information Security"

February 2022 – Present: **Head of Department**. Mongolian University of Science and Technology, School of Information and Communication Technology, Department of Information Networking and Security

WORK EXPERIENCE

February 2022 – Present: **Head of Department.** Mongolian University of Science and Technology, School of Information and Communication Technology, Department of Information Networking and Security, the following courses are taught.
- Professional management
- Information security
- System Security Special Topics 1
- Network Programming 1
- Firewall and intrusion detection system
- Ethical hacking
- Privacy protocol
- Database security
- Data and network privacy and security
- Network Security Project 2

September 2002 - August 2008: **Senior Lecturer**, Mongolian University of Science and Technology, School of Computer Science and Management
While working as a senior lecturer and network and technical engineer taught the following subjects.
- Computer architecture and design
- Data transfer theory
- Computer network
- Computer maintenance
- Network privacy protection
- Computer Architecture & Assembly Language
- Digital electronics
- Business applications
- Microcontroller
- Information communication and systems

September 2001 - June 2002: "New Mongolia" high school Computer service engineer
Taught computer software and information courses
Duties: Maintenance of computer hardware devices (Printer, Scanner, Monitor Power supply...) and Local Area Network.

LEARNING ACTIVITIES

№	Хичээлийн жил	Улирал	Хичээлийн нэрс
1	2017-2018	Autumn	J.SA304 - Network Planning and Data Storage J.SA308 - Data and Network Privacy Protection D.SA305 - System Security Project
		Spring	D.SA305 - System Security Project J.SA308 - Data and Network Privacy Protection F.NS253 - Special Topics in System Security J.SA301 - Database Security F.NS391 - Undergraduate Graduation Secretary
2	2018-2019	Autumn	F.NS311 - Data and Network Privacy Protection D.SA305 - System Security Project F.NS356 - Database Security F.NS391 - Undergraduate Graduation Secretary
		Spring	F.NS101 - Professional Introduction F.NS253 - Special Topics in System Security F.NS311 - Data and Network Privacy Protection F.NS391 Undergraduate Graduation Secretary
3	2019-2020	Autumn	F.NS311 - Data and Network Privacy Protection F.NS361 - Ethical hacking
		Spring	F.NS101 - Introduction to the profession F.NS253 - Special Topics in System Security F.NS311 - Data and Network Privacy Protection

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4	2020-2021	Autumn	F.NS361 - Ethical hacking
		Spring	F.NS253 - Special Topics in System Security F.NS355 - Privacy protocols
5	2021-2022	Autumn	F.NS353 - Firewall and intrusion detection system F.NS361 - Ethical attacks F.NS391 - Undergraduate Graduation Secretary
		Spring	F.NS253 - Special Topics in System Security F.NS355 - Privacy protocols F.NS391- Undergraduate Graduation Secretary
6	2022-2023	Autumn	F.NS253 - Special Topics in System Security F.NS351 - Network Programming 1 F.NS361 - Ethical hacking
		Spring	F.NS252 - System Security Project I F.NS253 - Special Topics in System Security F.NS351 - Network Programming I J.EE892 - Research Workshop J.NT804 - Network Forensic J.SS701 - Cryptography and Privacy Protection Protocols J.SS702 - Network intrusion detection and protection system J.SS705 - Ethical hacking J.SS706 - Cyber Security Policy and Law J.SS760 - Research Workshop I J.SS761 - Research Workshop II
7	2023-2024	Autumn	F.NS361 - Ethical attacks F.NS354 - Network Security Project 2 F.NSM702 - Ethical hacking J.SS701 - Cryptography and Privacy Protection Protocol J.SS702 - Network intrusion detection and protection system J.SS761 - Research Workshop II J.SS762 - Research Workshop III J.SS780 - Research Workshop
		Spring	
8			

LANGUAGE SKILLS

Korean Level 4   Seoul National University, Seoul, South Korea
English and Russian   Ability to read, write and listen

RESEARCH, PUBLISHED PAPERS AND DISPOSITIONS

1. **Munkhbayar B. and Tsedensuren Yu.** Bachelor degree Thesis: "Bidirectional stereo sound interface", June 2001.
2. **Munkhbayar B. and Tsedensuren Yu.** Master degree Thesis: "Creating the source massive from Universal serial bus video signals of micro image"(**Бичил дүрсийн универсал цуваа сувгаар видео дохионоос анхдагч мэдээллийн массив үүсгэх**), June 2002, : 82 хуудастай;
3. **Munkhbayar B**. "Digital electronic" Scientific paper of the Mongolian University of Science and Technology, 2004;
4. **Munkhbayar Bat-Erdene** and Unurkhan Esbold , " Application to VoiP in MUST ", the Mongolian University of Science and Technology, Computer Science and Management Institute, Doctor Students Conference, Ulaanbaatar, Mongolia 2005;
5. **Munkhbayar Bat-Erdene** and Unurkhan Esbold , "Network Security Management in MUST", the 8th international Conference on Electronics, Information, Communication, Ulaanbaatar, Mongolia June 27-28 2006
6. **Munkhbayar Bat-Erdene** and Unurkhan Esbold , "Intrusion Detection System", Doctor Students Conference, the Mongolian University of Science and Technology, Computer Science and Management Institute, March 2007.

7. Guhyeon Jeong, Euijin Choo, Joosuk Lee, **Munkhbayar Bat-Erdene**, Heejo Lee, "Generic Unpacking using Entropy Analysis", IEEE MALWARE, pp. 114-121, Oct. 20. 2010.

8. **Munkhbayar Bat-Erdene** and Heejo Lee, Presentation "Automatic Packer Detection Using Entropy Analysis", WAIS2011-Workshop among Asian Information Security Labs, Dalian, China, Jan 2011.

9. **Munkhbayar Bat-Erdene** and Heejo Lee, Presentation "Dynamic Classification of Packing Algorithms for Inspecting Executables using Entropy Analysis", WAIS2013-Workshop among Asian Information Security Labs, Nagasaki, Japan, Feb 2013.

10. Hongzhe Li,Taebeom Kim, **Munkhbayar Bat-Erdene** and Heejo Lee,"Software Vulnerability Detection using Backward Trace Analysis and Symbolic Execution" 7th International Workshop on Secure Software Engineering (SecSE 2013)

11. **Munkhbayar Bat-Erdene**, Taebom Kim, Hongzhe Li and Heejo Lee, "Dynamic Classification of Packing Algorithms for Inspecting Executables using Entropy Analysis", IEEE MALWARE, Oct. 22-24. 2013.

12. **Munkhbayar Bat-Erdene**, Hyundo Park, Hongzhe Li, Heejo Lee, and Mahn-Soo Choi. "Entropy analysis to classify unknown packing algorithms for malware detection." *International Journal of Information Security* 16, no. 3 (2017): 227-248. 2017

13. **Munkhbayar Bat-Erdene**, Taebeom Kim, Hyundo Park, and Heejo Lee. "Packer detection for multi-layer executables using entropy analysis." *Entropy* 19, no. 3 (2017): 125.

14. **Munkhbayar Bat-Erdene** and Heejo Lee. " Entropy Analysis of Packing Algorithms for Malware Detection " 2017.04.27 dissertation for the degree of Doctor

15. **G. Bayar, B. Munkhbayar** "Malware detection using deep learning on the example of .EHE files" InfoNetSec 2019

16. **B. Monkhbayar, G. Bayar, Yi He Ju** "Dynamic Classification of .EXE File Packager Algorithms Using Entropy Analysis" E-Nation Journal, page 366, 2021

17. **Ts. Tengis, B. Monkhbayar, A. Batmunkh, L. Urtsaikh** "Machining a thought into reality using a machine learning method based on brain-computer interface system", MMT2023

18. **Tengis Tserendondog, Uurstaikh Luvsansambuu, Munkhbayar Bat-Erdende, Batmunkh Amar** "Making Thoughts Real – a Machine Learning Approach for Brain-Computer Interface Systems" International Journal of Internet, Broadcasting and Communication Vol.15 No.2 124-132 (2023) http://dx.doi.org/10.7236/IJIBC.2023.15.2.124

19. **Ts. Tengis, B. Munkhbayar Bayanmunkh, Bilagdemberel** "Converting from thought to reality", MUST, SICT, Academic conference of undergraduate students, 2023

20. **Ts. Tengis, B. Munkhbayar, Bayanmunkh, Bilagdemberel** "Converting from thought to reality", MUST, Academic conference of undergraduate students, 2023

21. **B. Munkhbayar, Ts. Tengis, B. Temunun,** "Analysis of Android.DEX file" MUST, SICT, Academic conference of undergraduate students, 2023

22. **B. Munkhbayar, Ts. Tengis, B. Temunun,** "Analysis of Android.DEX file" MUST, Academic conference of undergraduate students, 2023

23. **B. Munkhbayar, N. Davaadorj, J. Unubold, T. Shijir-Alt, M. Jugdernamjil,** "Detection of malicious urls using machine learning" MUST, SICT, Academic conference of undergraduate students, 2023

24. **B. Munkhbayar, N. Davaadorj, J. Unubold, T. Shijir-Alt, M. Jugdernamjil,** "Detection of malicious urls using machine learning" MUST, Academic conference of undergraduate students, 2023

25. **B. Munkhbayar, G. Tengis, L. Bilgunzaya, J. Munkhsaikhan,** "Detective Iconan - Development of a tool for early detection of phishing websites using a search engine" MUST, SICT, Academic conference of undergraduate students, 2023

26. **B. Munkhbayar, G. Tengis, L. Bilgunzaya, J. Munkhsaikhan,** "Detective Iconan - Development of a tool for pre-detection of phishing websites using a search engine" MUST, Academic conference of undergraduate students, 2023

PERFORMANCE SKILLS

- EC-Council Certified Ethical Hacker Exam CEH v10
- Have experience in maintaining and assembling PCs
- Have experience in programming Pascal, C, C++, Python and Assembler
- Have work experience in Ubuntu, MS Programs, Adobe application programs; circuit designing and simulation applications (Protel, Orcad, Matlab-Simulink); database (MSAccess,Visual Basic)
- Have experience in internet programming DW, Flash, PHP, Java

COURSES COVERED

1. **Munkhbayar B.** Training Basics on ISO 27001 - Information Security Management Systems, Ulaanbaatar, Mongolia, 2022-04-14
2. **Munkhbayar B.** CERTFICATE of participation in WORKSHOP 'QUALITY CULTURE-INTERNAL QUALITY ASSURANCE' organized in Ulaanbaatar, Mongolia from 26 to 28 April 2018 awarded
3. **Munkhbayar B.** CERTFICATE OBC_ISMS_TR_08 this certificate is presented. Has successfully completed the 2-day training course on ISO/IEC 27001 and ISO/IEC 22301
4. **Munkhbayar B.** Python Basics, Attended Coursera certified training and received a certificate, 2020-12-05.
5. **Munkhbayar B.** Information Security: Context and Introduction, Attended Coursera certified training and received a certificate, 2020-12-10.
6. **Munkhbayar B.** Python Functions, Files, and Dictionaries, Attended Coursera certified training and received a certificate, 2020-12-14
7. **Munkhbayar B.** UNOCT-UNCCT workshop on "Protection of Critical Infrastructure from Terrorist Cyber- Attacks" on 16-17 November 2021, Ulaanbaatar, Mongolia
8. **Munkhbayar B.** Capacity Building Project for School of Information and Communication Technology at Mongolian University of Science and Technology in Mongolia (Managerial Invitational Workshop) from July 3-July16, 2023

STATUS OF PROJECT IMPLEMENTATION:

1. B. Munkhbayar, T. Magsarjav, Ts. Manlaibaatar, Ts. Erdenesaihan, Ts. Enkhtor, L. Odonchimeg, MSAB Branch Project Team for Information Security Auditing of MNT and successfully delivered the project, 2018

2. B. Munkhbayar, Ts. Tengis, B. Oyuntungalag, international research work on creating a National Cyber Security Program was delivered in cooperation with the Ministry of Justice and Internal Affairs, 2019

3. B. Munkhbayar, T. Magsarjav, T. Erdenesaikhan, MONGOLIA STANDARDS - Information technology - Security techniques - Information security management system - Requirements - Entry of ISO 27001:2019 standard and worked as a team member

4. B. Munkhbayar, T. Magsarjav, T. Erdenesaihan, MONGOLIA STANDARDS - Information technology - Security techniques - Information security management system - Guidelines - ISO 27003:2019 entry and worked as a team member

5. B. Munkhbayar, T. Manlaybaatar, developed laboratory equipment and organization in the Koica project team to be carried out at MUST, SICT, 2020-2021

6. B. Munkhbayar, G. Bayar, V. Nyamsuren, Ch. Erdenebat, B. Bujmaa, 2020-2021 Cyber Security Program developed by MUST, SICT

7. Established CCS club for students of MSAB and works as its leader and teacher. From 2020 to now

8. CCS club students and employees participated in the Garuul Zangi CTF competition organized by MN-CERT. From 2020 to now

9. At the initiative of N. Uchral, a member of the Great Khural of Mongolia, participated in the public referendum on the Law on Personal and Social Information Security, 2021.

10. B. Munkhbayar, Ts. Tengis, A. Batmunkh, Uurtsaih, Basic research project implementation and financing agreement - "Research on brain signal processing using EEG sensor by machine learning" Fall 9 million, 2022-2024

MONGOLIA COPYRIGHT CERTIFICATE:

1. Generic Unpacking using Entropy Analysis, №12938, 2010.12.13

2. Software Vulnerability Detection using Backward Trace Analysis and Symbolic Execution, №12937, 2013.11.07

3. Dynamic Classification of Packing Algorithms for Inspecting Executables using Entropy Analysis, №12939, 2014.01.09

4. Entropy analysis to classify unknown packing algorithms for malware detection, №12942, 2016.05.04

5. Packer detection for multi-layer executables using entropy analysis, №12941, 2017.03.16

6. Entropy analysis of packing algorithms for malware detection, №12943, 2017.08.01

7. General decompression of .EXE files using entropy analysis, №12945, 2021.04.15

8. Dynamic classification of .EXE file packer algorithms using entropy analysis, №12944, 2021.06.26

9. International study of the program to combat cybercrime, №12948, 2021.01.01

10. Application of filtering methods against attacks to exploit the service, №12946, 2021.01.01

11. Analysis of Smart Grid Security Standards, №12947, 2021.06.01

12. DraughtsMon v1.0 Software, №11396, 2019.12.23

13. Software for managing things based on logistic regression models, №15162, 2023.05.03

14. CNN model-based thinking software, №15163, 2023.05.03

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INTERNATIONAL COPYRIGHT CERTIFICATE:

1. Heejo Lee, Munkhbayar Bat-Erdene, Hyuncheol Jeong, Daegull Ryu, United States Patent Application Publication, "Method for classifying packing algorithms using entropy analysis", Pub. No.: US 2014/0289848A1

STATUS OF COMMUNITY WORK:

1. Worked as teacher development leader since May 2020.
2. Participates and is responsible for the 6-year competition of teachers and employees of MUST and SICT on behalf of the school
   In December 2021, 5 trainings and meetings will be organized. It includes:
   ➢ Professional teaching in English by teachers and sharing experiences led by club students
   ➢ In cooperation with GHS, professional teaching courses in English will be organized for all teachers.
   ➢ Ethical training for teachers and staff
   ➢ Psychological training of teachers
   ➢ Organizational management and management
3. In February 2019, 6 students,
4. In August 2020, 2 students graduated from South Korea through the joint 2+2 program of System Security with South Korea, SCH University.
5. In August 2021, 13 students were successfully organized and sent to the joint 2+2 program of System Security with the South Korea, SCH University.

STATUS OF WORKING AS SUPERVISOR OF MASTER'S GRADUATION:

1. *Specialization: E04130101 Business management (Information system management) Batjargal E.,* **Digital transition in public organizations**, Published: 2021, UB, Page: 120
2. *Profession: E04130101 Business management (Information system management)*
   Zandargiiraa, J., **A feasibility study of RPA in education**, Published: 2021, UB,
3. *Specialization: E06190401 System security, Nergui Ch.,* **Smart grid security standard analysis,** Published: 2021. UB, Page:
4. *Specialization: E06190401 System security, Iderbukh I.,* **Detection of malicious programs using EXE files**, Published: 2020, UB, Page: 49
5. *Specialization: E06190301 Network technology, Bayanmunkh S.,* **Filtering method using against Distributed Denial-of-Service attacks**, Published: 2020, UB, Page: 53
6. *Specialization: E06190301 Network technology, Erenburgad M.,* **An international study of cybercrime strategy**, Published: 2020, UB, Page: 72
7. *Profession: E04130101 Business management (Information system management), Urnaa Ts.,* **Auditing information in public organizations**, Published: 2020, UB, Page: 95
8. *Specialization: E04130101 Business Management (Information System Management), Urnaa O.,* **Research on International E-Commerce and Mongolia**, Published: 2020, UB,

9. *Specialization: E06190401, System security, Lkhavuujal N.,* **Android malware detection using static analysis**, Published: 2018, UB, Page: 68

STATUS OF WORKING AS ADVISOR IN MASTER'S THESIS:

1. *Profession: D061202 Information system security, B. Choijilbuu,* **Research data security technologies for cloud storage** Published: 2023, UB, page 75.
2. *Profession: E04130101 Business management (Information system management)*
   Undral E., **Exploring the Governance of Data Management in Business**, Published: 2021, UB,
3. *Profession: E04130101 Business management (Information system management)*
   Ganbold B., **Possibility of introducing ISO27001 information security integrated management system in the organization**, Published: 2021, UB,

STATUS OF WORKING AS CRITIC FOR MASTER'S THESIS:

1. *Profession: E04130101 Telecommunications, Odonchimeg L.,* **Cyber-crime prediction methods using machine learning**, Published: 2022, UB, Page: 84.
2. *Specialization: D061201 Network Technology, D. Nandinbileg,* **Multimedia Traffic Modeling and Analysis**, Published: 2020, UB, page 53.

STATUS OF EMPLOYED AS SUPERVISOR OF BACHELOR'S GRADUATION:

1. *Supervisor: B.Munkhbayar, Specialization: D061202 Information system security, Munkh-erdene M.,* **Research on cyber security crime prevention techniques**, Published: 2023, UB, Page: 65
2. *Supervisor: B.Munkhbayar, Specialization: D061202 Information system security, Munkh-Ochir G.,* **Research and testing of SQL injection attack prevention methods**, Published: 2023, UB, Page: 65
3. *Supervisor: B.Munkhbayar, Specialization: D061202 Information system security, Bayarlahjargal T.,* **A study of techniques used to detect signature based malware**, Published: 2023, UB, Page: 65
4. *Supervisor: B.Munkhbayar, Specialization: D061202 Information system security, Buyandelgereh B.,* **Control to phone camera**, Published: 2023, UB, Page: 58
5. *Supervisor: B.Munkhbayar, Specialization: D061202 Information system security, Sukhbat Z.,* **Hacking WIFI networks**, Published: 2023, UB, Page: 65
6. *Supervisor: B.Munkhbayar, Specialization: D061202 Information system security, Togoldarhurts O.,* **Detecting Malicious URLs using Machine Learning and Signature Matching**, Published: 2023, UB, Page: 74
7. *Supervisor: B.Munkhbayar, Specialization: D061202 Information system security, Sumiyasanchir B.,* **Android malware detection**, Published: 2022, UB, Page: 29
8. *Supervisor: B.Munkhbayar, Specialization: D061202 Information system security, Kherlenbaatar S.,* **Malware detection using APK files**, Published: 2021, UB, Page: 32
9. *Supervisor: B.Munkhbayar, Specialization: D061202 System security, Bat-erdene E.,* **Studying and testing attack tools on wireless networks**, Published: 2021, UB, Page: 52
10. *Supervisor: B.Munkhbayar, Specialization: D061202 System Security, Dashnyam D.,* **Web Attacks and Web Defense Analysis**, Published: 2021, UB, Page: 47
11. *Supervisor: B.Munkhbayar, Specialization: D061202 System security, Tergel Ts.,* **Techniques for improving information security**, Published: 2021, UB, Page: 32
12. *Supervisor: B. Munkhbayar, Specialization: D061202 System security, Amarbold G.,* **Comparative analysis of machine learning methods for detection of PE file malware**, Published: 2021, UB, Page: 48
13. *Supervisor: B.Munkhbayar, Specialization: D061202 System Security, Byambadalai S.,* **Developing an Information Security Platform**, Published: 2021, UB, Page: 60
14. *Supervisor: B.Munkhbayar, Specialization: D061202 System security, Namsray D.,* **Malware detection using Arc file system**, Published: 2021, UB, Page: 35
15. *Supervisor: B.Munkhbayar, Specialization: D061202 System security, Vhovtokaldur Ts.,* **Ethical attack techniques to improve information security**, Published: 2021, UB, Page: 52
16. *Supervisor: B.Munkhbayar, Specialization: D061202 System security, Enhbat N.,* **Web attack and security analysis**, Published: 2021, UB, Page: 57

17. *Supervisor: B. Munkhbayar, Specialization: D061903 Network technology, Azbayar M.,* **Wireless camera sensor network**, Published: 2021, UB, Page: 59
18. *Supervisor: B. Munkhbayar, Specialization: D061903 Network technology, Baljinjam T.,* **Detecting malicious web links and determining their attack type**, Published: 2021, UB, Page: 58
19. *Supervisor: B. Munkhbayar, Specialization: D061903 Network technology, Yeşan-erdene B.,* **Attack techniques in wireless networks**, Published: 2021, UB, Page: 69
20. *Supervisor: B. Munkhbayar, Specialization: D061202 System security, Tzomjargal H.,* **Digital signature**, Published: 2020, UB, Page: 46
21. *Supervisor: B. Munkhbayar, Profession: D061903 Network technology, Maidar N.* **Internet of Things Security Requirements Analysis**, Published: 2020, UB, Pages: 40
22. *Supervisor: B. Munkhbayar, Specialization: D061903 Network technology, Munkhdolgun B.,* **Network topology attack protection**, Published: 2020, UB, Page: 50
23. *Supervisor: B. Munkhbayar, Specialization: D523910 System security, Tumennast S.,* **Malware detection**, Published: 2020, UB, Page: 33
24. *Supervised: B. Munkhbayar, Specialization: Information system security, Purevsuren G.,* **Development of access authentication module using QR code and ONE TIME password**, Published: 2018, Ulaanbaatar, Page: 33
25. *Supervised: B. Munkhbayar, Specialization: Information system security, Chinzorig M.,* **Virus detection system in documents**, Published: 2018, Ulaanbaatar, Page: 34
26. *Supervised: B. Munkhbayar, Specialization: Information system security, Munkhjargal D.,* **Designing a positioning program using the coordinate data of the Global Positioning System**, Published: 2018, Ulaanbaatar, Page: 33

UNDERGRADUATE EMPLOYMENT ADVISORY STATUS:

1. *Recommended Lecturer: B.Munkhbayar, Specialization: D061202 System security, Nuvaanchimed I.,* **Malware detection research**, Published: 2018, UB, Page:
2. *Recommended Lecturer: B.Munkhbayar, Specialization: D061202 System security Enhjin E.,* **Research and testing of mobile phone hacking methods**, Published: 2019, UB, Page:
3. *Recommended Lecturer: B.Munkhbayar, Specialization: D061202 System security Bilguntogs B.,* **Mobile phone network security research and testing**, Published: 2019, UB, Page:
4. *Recommended Lecturer: B.Munkhbayar, Specialization: D061202 System security, Amarbayasgalan O.,* **Auditorium Smart Classroom Service system development, testing and research in lecture courses,** Published: 2019, UB, Page:
5. *Recommended Lecturer: B.Munkhbayar, Specialization: D061202 System security, Munkhsarnai D.,* **Feasibility study for security of physical level of wireless network**, Published: 2020, UB, Page:
6. *Recommended Lecturer: B.Munkhbayar, Specialization: D061202 System security, Nurjanat M.,* **Modern trends and experiments in website hacking**, Published: 2020, UB, Page:
7. *Recommended Lecturer: B.Munkhbayar, Specialization: D061202 System security, Enkhmaa T.,* **Development of a system for asset registration and vulnerability testing**, Published: 2020, UB, Page:
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AWARDS:

1. Awarded with the approval of the best supervisor of the student's academic work, November 24, 2023
2. The title of Chief Education Officer of the Ministry of Education and Science, 2022
3. Education certificate of honor 2019 of the Ministry of Education and Science
4. Youth Association, Gold Medal 2003
5. Awarded the Best Teacher of 2003

Updated Date: **December 11, 2023**.