Dr. Maksum Pinem, S.T., M.T.

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I am Maksum Pinem, and I am currently a lecturer in the Electrical Engineering Study Program, specializing in Telecommunication Engineering, at the Faculty of Engineering, Universitas Sumatera Utara (USU). Holding the academic position of Lecturer with the rank of Administrative Officer III-C, I earned my undergraduate degree from the USU Electrical Engineering Study Program in 1994. Subsequently, I pursued my master's studies at ITB Bandung, starting in 1997. After completing a one-year Pre-Master's program, I officially enrolled in the Telecommunication Engineering Study Program at ITB Bandung in 1998.

Following graduation from the master's program in 2001, I began my tenure as a lecturer in the Electrical Engineering Study Program at FT. USU. My research interests primarily revolve around mobile wireless communication, for which I have secured research grants from both Dikti and Talenta USU. Furthermore, I actively engage in collaborative research endeavors with fellow lecturers, exploring various fields within Electrical Engineering, including Switching Engineering, Antennas, and Electrical Energy Engineering.

Each semester, I impart my expertise through teaching a range of courses. Additionally, I assume the role of Head of the Telematics Laboratory. Beyond teaching and research, I contribute to the academic community by publishing scientific papers, particularly in mobile wireless communication. My collaborative works, both Scopus-indexed and non-indexed, are accessible on platforms such as Google Scholar, orcid.com, and scopus.com.

Furthermore, I actively participate in Community Service activities alongside fellow Electrical Engineering Study Program lecturers annually. Additionally, I play an integral role in various Study Program committees, including the accreditation committee, curriculum revision committee, and International conference committee (Elticom).

Notably, in 2015-2016, as a member of the Electrical Engineering Study Program Accreditation team, I contributed to achieving an A rating for the program for the first time.

Publications

2026
Prosiding seminar internasional

Optimization of LIFEPO4 Battery Pack for Electric Vehicles Application Using Active Balancer

MAKSUM PINEM , FAHMI , SOEHARWINTO

2026
Prosiding seminar internasional

Optimizing Minimum Reuse Distance Using a Hybrid Pointing and Fractional Frequency Reuse Method in LTE 2600 MHz

MARIZALDI BAY , MUHAMMAD ZULFIN , SIHAR P PANJAITAN , MAKSUM PINEM

2026
Jurnal internasional bereputasi

Comparative performance analysis of MPPT algorithms for wind power generation: P&O, INC, and TSR methods

YULIANTA SIREGAR , MAKSUM PINEM

2026
Prosiding seminar internasional

The Relationship between Tag Values and Redundant Paths in Gamma Networks

MUHAMMAD ZULFIN , MAKSUM PINEM , RAJA HARAHAP , ARMAN SANI , RAHMAD FAUZI , FAHMI RINALDI , MUHAMMAD

RAZALI

2026
Prosiding seminar internasional

Monitoring and Control System for Solar Trackers Based on the Internet of Things

YULIANTA SIREGAR , MAKSUM PINEM , OFEBER TAFONAO

2026
Prosiding seminar internasional

Design of a Wind Power Generation Turbine for Low-to-Medium Wind Speeds in Medan

YULIANTA SIREGAR , MAKSUM PINEM , MUHAMMAD RIZKI SYAHPUTRA

2026
Prosiding seminar internasional

Estimation of Safety Threshold Parameters of Substation Grounding Grid Configurations

SURYA HARDI , MAKSUM PINEM , MUHAMMAD DANI SOLIHIN , DESMAN JONTO SINAGA

2025
Prosiding seminar internasional

Gain Optimization of 2×4 Rectangular Microstrip Patch Antenna Based on Feed Line Configuration

ALI HANAFIAH RAMBE , MUHAMMAD ZULFIN , MAKSUM PINEM , YULIANA MUNTHE

2025
Prosiding seminar internasional

The Effect of Backtracking Mechanism in Increasing MIN Fault Tolerant

MUHAMMAD ZULFIN , MAKSUM PINEM , RAHMAD FAUZI , RAJA HARAHAP , FAHMI RINALDI , MUHAMMAD RAZALI

2025
Prosiding seminar internasional

Three Dimesional Ray-Tracing Propagation Model of the Fifth Generation Network at Universitas Sumatera Utara

MAKSUM PINEM , SURYA HARDI , MUHAMMAD ZULFIN , AGIDA PUTRANTI NARULITASARI , SIHAR P PANJAITAN

2025
Prosiding seminar internasional

The Effect of Backtracking Mechanism in Increasing MIN Fault Tolerant

MUHAMMAD ZULFIN , MAKSUM PINEM , MUHAMMAD RAZALI , MUTIA FITRI CHANIA , RAJA HARAHAP , FAHMI RINALDI

2025
Prosiding seminar internasional

Performance Comparison of Ant Colony Optimization and Symbiotic Organism Search In Smart Home Energy Management Systems

MAKSUM PINEM , YULIANTA SIREGAR , SANDY ARMANDO SAPUTRA

2024
Artikel ilmiah

The Effect of Backtracking Mechanism in Increasing MIN Fault Tolerant

MUHAMMAD ZULFIN , MAKSUM PINEM , RAJA HARAHAP , RAHMAD FAUZI , FAHMI RINALDI , MUHAMMAD RAZALI

2024
Prosiding seminar internasional

The Effect of Redundant Paths on Internal Blocking of Multistage Interconnection Networks

MUHAMMAD ZULFIN , RAHMAD FAUZI , FAHMI RINALDI , MUHAMMAD RAZALI , MAKSUM PINEM , RAJA HARAHAP

2024
Prosiding seminar internasional

The Protocol of Low Energy Multihop to Monitoring The River Based on The Internet of Things

SIHAR P PANJAITAN , MAKSUM PINEM , SURYA HARDI

2024
Prosiding seminar internasional

Analysis of Pathloss in DVB-T2 Broadcasting Systems for Urban Environments

MAKSUM PINEM , MUHAMMAD ZULFIN

2023
Artikel ilmiah

The Effect of Redundant Paths on Internal Blocking of Multistage Interconnection Networks

RAJA HARAHAP , MUHAMMAD RAZALI , FAHMI RINALDI , MUHAMMAD ZULFIN , RAHMAD FAUZI , MAKSUM PINEM

2023
Jurnal internasional bereputasi

Estimation of Path Loss Propagation Model on Homogeneous Vegetation for 2100 MHz Mobile Communication Networks

ALI HANAFIAH RAMBE , MAKSUM PINEM , NUR ADILAH , FADILAH RAHMA , HENDRI , YULIANA MUNTHE

2023
Jurnal nasional

Perbaikan Internal Blocking Jaringan Interkoneksi Banyak Tingkat Topologi Omega 8x8 dengan Algoritma Look-Ahead

FAHMI RINALDI , MUHAMMAD ZULFIN , RAJA HARAHAP , MAKSUM PINEM , MUHAMMAD RAZALI

2022
Prosiding seminar internasional

Microstrip rectangular patch antenna design for Medan aviation polytechnic ADS-B receiver technology

ALI HANAFIAH RAMBE , MAKSUM PINEM

2022
Prosiding seminar internasional

Improved Vertical Handover Performance with Two WLAN Insertions

MAKSUM PINEM

2021
Prosiding seminar internasional

Study of Handover Parameter Optimization Modeling for Four Base Stations with Empirical Radio Channels

MAKSUM PINEM , MUHAMMAD ZULFIN

2021
Prosiding seminar internasional

Path Loss Characterization for Incoming Signal in Building Corridor

SIHAR P PANJAITAN , MAKSUM PINEM

2021
Prosiding seminar internasional

Rooftop to Street Radio Propagation Analysis on GSM 1800 Frequency Spectrum

MAKSUM PINEM

2021
Prosiding seminar internasional

Performance Comparison of Matrix-Based and Division Algorithms Implemented on The 8×8 Benes Network

MUHAMMAD ZULFIN , MAKSUM PINEM , FAHMI RINALDI

2020
Artikel ilmiah

The Implementation of Routing Division Algorithm on The 16 x16 Benes Switching Network

MUHAMMAD ZULFIN , SUHERMAN , MAKSUM PINEM

2020
Prosiding seminar internasional

Ultrasonic Sensor Assessment for Obstacle Avoidance in Quadcopter-based Drone System

SUHERMAN , MAKSUM PINEM

2020
Prosiding seminar internasional

Numerical simulation of a rectangular microstrip patch antenna for 3.35 GHz applications

MUHAMMAD ZULFIN , SUHERMAN , ALI HANAFIAH RAMBE , MAKSUM PINEM

2020
Prosiding seminar internasional

Detach CTS for active load balancing in 802.11 networks

SUHERMAN , MAKSUM PINEM

2020
Prosiding seminar internasional

Byteless CTS for passive load balancing in 802.11 networks

SUHERMAN , MAKSUM PINEM

2020
Prosiding seminar internasional

Environmental Sensor Assessment for a Light Quadcopter Drone

SUHERMAN , MAKSUM PINEM

2020
Prosiding seminar internasional

LTE soft handover based on hysteresis and threshold combination

EMERSON PASCAWIRA SINULINGGA , MAKSUM PINEM , SUHERMAN

2019
Prosiding seminar internasional

Performance comparison of Looping and Input Output Algorithms on the 8 x 8 Benes Switching Network

SUHERMAN , RAHMAD FAUZI , MAKSUM PINEM , MUHAMMAD ZULFIN

2019
Prosiding seminar internasional

Reducing Crosspoints on Multistage Switching by Using Batcher Banyan Switches

SUHERMAN , MUHAMMAD ZULFIN , RAHMAD FAUZI , MAKSUM PINEM

2018
Jurnal internasional bereputasi

Impact Suboptimal Signal Degradation Handoff (SDH) Properties to Handoff Parameters

SUHERMAN , MAKSUM PINEM

2018
Jurnal internasional

Characterization of outdoor to indoor propagation in urban area by using a combination of COST231 Walfisch-Ikegami and COST231 multiwall models in 1800 Mhz and 2100 Mhz

MAKSUM PINEM , MUHAMMAD ZULFIN , SUHERMAN

2018
Jurnal internasional bereputasi

Cross-Point Comparison of Multistage Non-Blocking Technologies

MUHAMMAD ZULFIN , SUHERMAN , RAHMAD FAUZI , MAKSUM PINEM

Researches

2024

Implementation of Outdoor to Indoor Path Loss Modelat 1.8 GHz and 2.1 GHz with a Transmitter Placed on Top of The Building

MAKSUM PINEM , MUHAMMAD ZULFIN , HASDARI HELMI RANGKUTI , SIHAR P PANJAITAN

2022
Ipteks

IMPLEMENTASI MODEL PROPAGASI DARI LUAR KE DALAM PADA FREKUENSI 1,8 GHZ DAN 2,1 GHZ DENGAN PEMANCAR DI ATAS GEDUNG

MAKSUM PINEM , MUHAMMAD ZULFIN , PANANGIAN MAHADI SIHOMBING , HASDARI HELMI RANGKUTI , MUHAMMAD AMRIL , SIHAR P PANJAITAN

2021
Ipteks

PERANCANGAN DAN OPTIMALISASI KINERJA HANDOVER PADA PEMODELAN JARINGAN BERGERAK EMPAT BASE STATION

MAKSUM PINEM , MUHAMMAD ZULFIN

2021

Path Loss Characterization for Incoming Signal in Building Corridor

MAKSUM PINEM , SIHAR P PANJAITAN

2020

Optimizing parameters of active set and handover rate in mobile communications by implementing radio channels of Hata model

MAKSUM PINEM , SURYA HARDI , SIHAR P PANJAITAN

2018
Ipteks

Rancang Bangun Switch Multistage Non Blocking untuk Jaringan Packet Switching

MAKSUM PINEM , MUHAMMAD ZULFIN , RAHMAD FAUZI

2014
Penelitian Hibah Bersaing

Perancangan dan Realisasi Antena Mikrostrip Triple Band untuk Aplikasi WiMAX

MAKSUM PINEM , MUHAMMAD ZULFIN , ALI HANAFIAH RAMBE

Community Services

2023
Ipteks Bagi Masyarakat

PELATIHAN PEMBUATAN SISTEM KEAMANAN KUNCI LOKER BAGI SANTRI BERBASIS IOT DENGAN MENGGUNAKAN APLIKASI TELEGRAM DI MA’HAD TAHFIDZ YATIM DHUAFA KITABINA DESA SAYUM SABAH DELI SERDANG

MAKSUM PINEM , MUHAMMAD ZULFIN , ALI HANAFIAH RAMBE , ARMAN SANI , HENDRA ZULKARNAIN

2020
Ipteks Bagi Masyarakat

Workshop Pembelajaran Online dengan Menggunakan Google Class Room di SMA Negeri 5 Medan

FAKHRUDDIN RIZAL BATUBARA , RISWAN DINZI , MAKSUM PINEM , MUHAMMAD ZULFIN , ALI HANAFIAH RAMBE , ARMAN SANI , SYAFRUDDIN HS , EMERSON PASCAWIRA SINULINGGA , RAHMAD FAUZI , KASMIR TANDJUNG

2011

Sosialisasi dan Bimbingan Pemberdayaan Teknologi Informasi dalam Membangun Sistem Informasi Pengolahan Data Nilai Siswa

MAKSUM PINEM , MUHAMMAD ZULFIN , ALI HANAFIAH RAMBE , SURYA TURMUZI KASIM , RAHMAD FAUZI

Intellectual Property Rights

2026
Paten nasional

Sistem Optimalisasi Kapasitas Battery Pack pada Sistem PLTS dengan Active

Balancer untuk Kenderaan Listrik

MUHAMMAD ZULFIN , MAKSUM PINEM

2019

Hak cipta nasional

Pembelajaran Sistem Komunikasi Bergerak Berbasis GUI Matlab

MAKSUM PINEM

2019

Hak cipta nasional

Software Aplikasi Pembelajaran Pratikum Dasar Telekomunikasi Berbasis GUI Matlab

MAKSUM PINEM

2019

Hak cipta nasional

Perancangan Laboratorium Virtual Dasar Telekomunikasi Berbasis GUI Matlab

MAKSUM PINEM

2019

Hak cipta nasional

Study Of Large Scale Propagations As Channel For Mobile Communications

MAKSUM PINEM