



IPB University
— Bogor Indonesia —



BRAIN
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THE APPLICATION OF ARTIFICIAL INTELLIGENCE AND BLOCKCHAIN FOR FOOD SECURITY

PROF. DR. IR. YANDRA ARKEMAN, M.ENG.

- PhD in Intelligent Manufacturing Systems, Australia
 - Post Doctoral in Artificial Intelligence, Japan and USA
 - Professor in Agro-industrial Technology, IPB
 - Head of Agro-Maritime Logistics Master Study Program, IPB
 - Halal Logistics and SCM Expert at Halal Science Center (HSC), IPB University
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- Member of HIPI (Himpunan Informatika Pertanian Indonesia)
 - Board Member of APFITA (Asia Pacific Federation of Information Technology in Agriculture)
 - Member of ISLI (Institut Supply Chain dan Logistik Indonesia)
 - Researcher of Blockchain, Robotics and Artificial Intelligence Networks (BRAIN)



TECHNOLOGY 4.0/5.0: OVERCOMING THE EL NINO & LA NINA THREATS



Artificial Intelligence



EL NINO & LA NINA anomaly prediction

- El Nino/La Nina Prediction System
- Intelligent Planting Scheduling
- Smart Land Use Planning
- Smart Food Inventory System
- Precision Farming:
 1. Precision crop scheduling
 2. Precision irrigation management
 3. Precision fertilizer inputs
 4. Pests & diseases detection
 5. Precision pesticide application

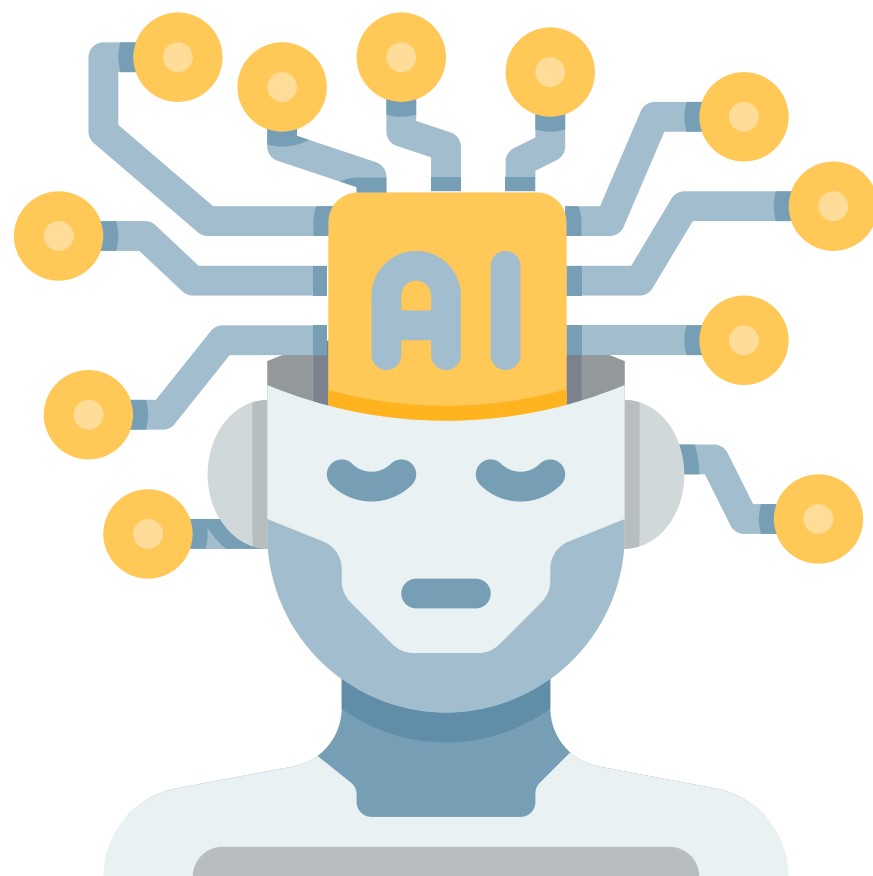
IoT & Robotics



AI and Blockchain for Food Loss and Food Waste Reduction



Artificial Intelligence



- Weather Prediction System
- Smart Planting Calendar
- Smart System for Pest Detection
- Soil Processing, Fertilization, Irrigation, and Harvesting Automation Technologies
- Farm Management
- Intelligent Farming Business Management & Information System
- Agricultural Extension System Platform
- Smart Logistics & Supply Chain System
- E-Commerce of Agricultural Products



Blockchain

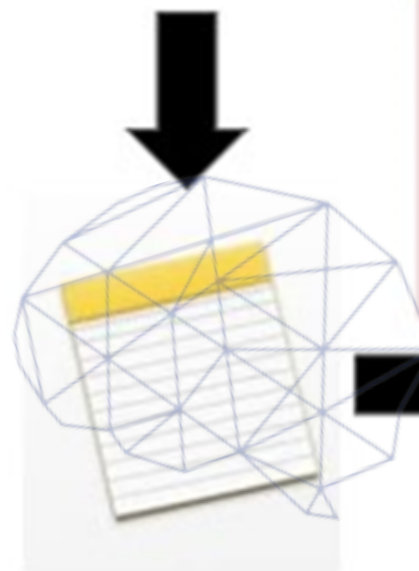


PreciFLog©: Precision Food Logistics

Sistem Logistik Pangan Presisi Tinggi di saat Pandemi Covid-19

Tim: Prof. Yandra Arkeman, Dr. Irman Hermadi, Willyam, dkk

Stok Bahan Pangan:
Beras, Daging, Telur,
Gula, Minyak Sayur



Pencatatan

Cloud Computing



Intelligent Monitoring
Menggunakan **Deep Learning**
(RNN) dan **Autoencoder**



Prediksi & Verifikasi
Stok Bahan Pangan

Database Service
Berbasis **Blockchain**



PreciFLog©

Tujuan Utama

Pencatatan
Akurat dan Faktual



Pengambilan
Keputusan Pangan



Aksi Pangan
Akurat

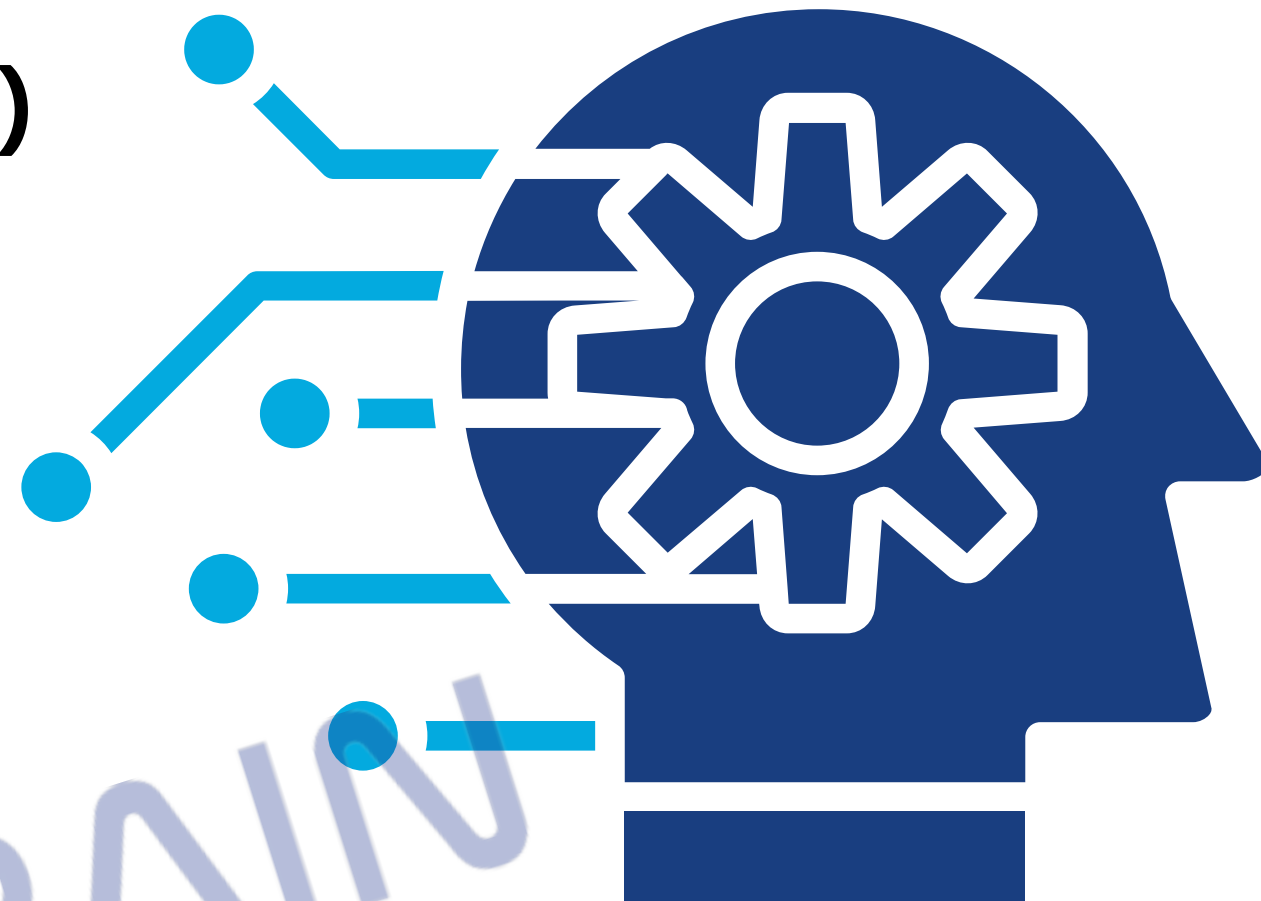


Terjaminnya
Ketersediaan
Pangan

Food Prediction System

INPUT (FACTORS)

- Climate Change
- Social Security
- Natural Disaster
- Availability
- Scarcity
- Lead Time
- Price
- Historical Data
- Environment
- Social



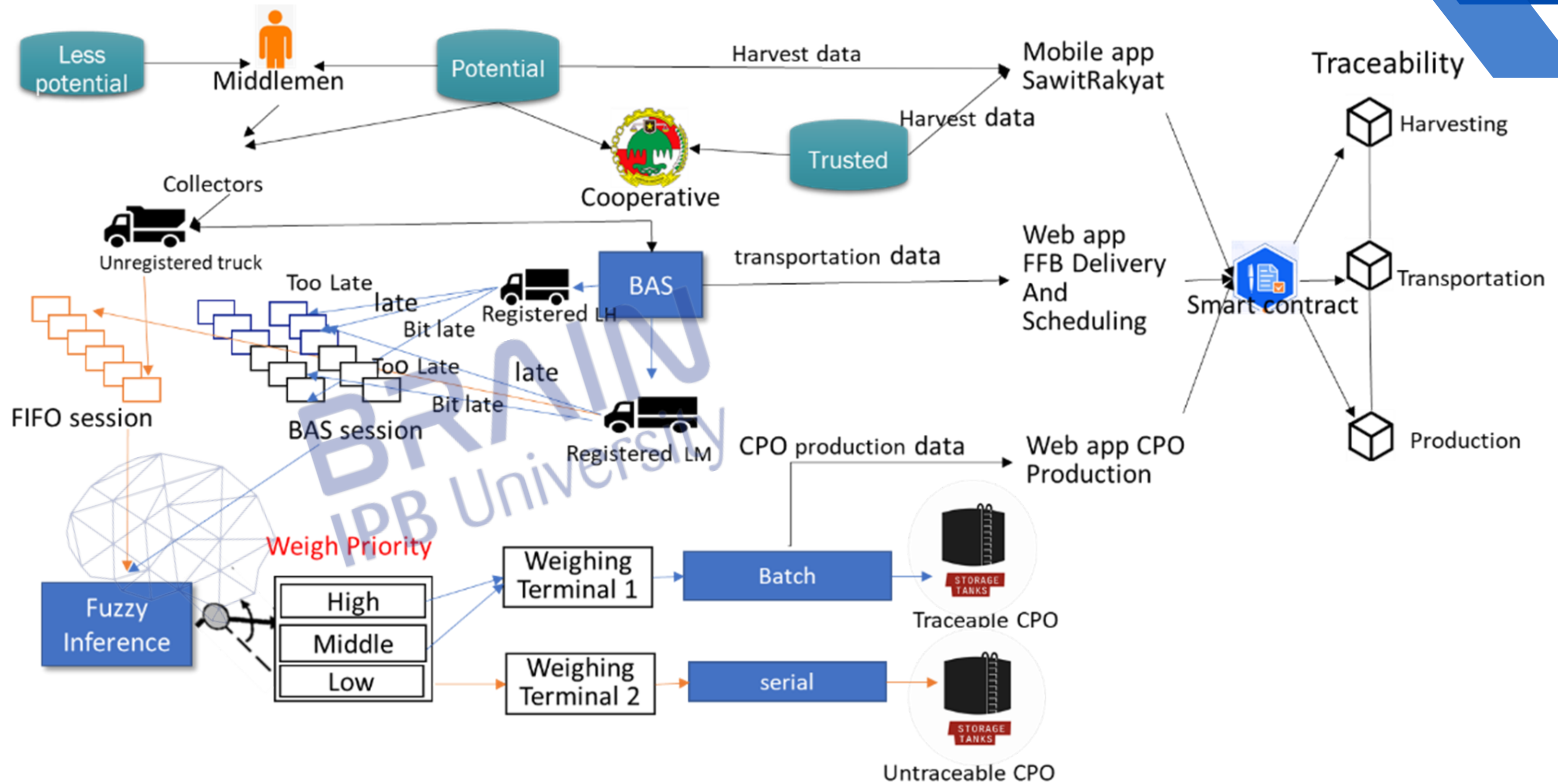
OUTPUT (FACTORS)

- Global/Local Pricing
- Crops volume prediction based on harvest season and production centers distribution
- Demand prediction
- Food inventory/reserves determination
- Food insecurity prediction
- Nutrition intake prediction
- Food diversification production prediction based on production centers distribution
- Food safety level determination based on area



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Deforestation-free Palm Oil FFB Supply chain





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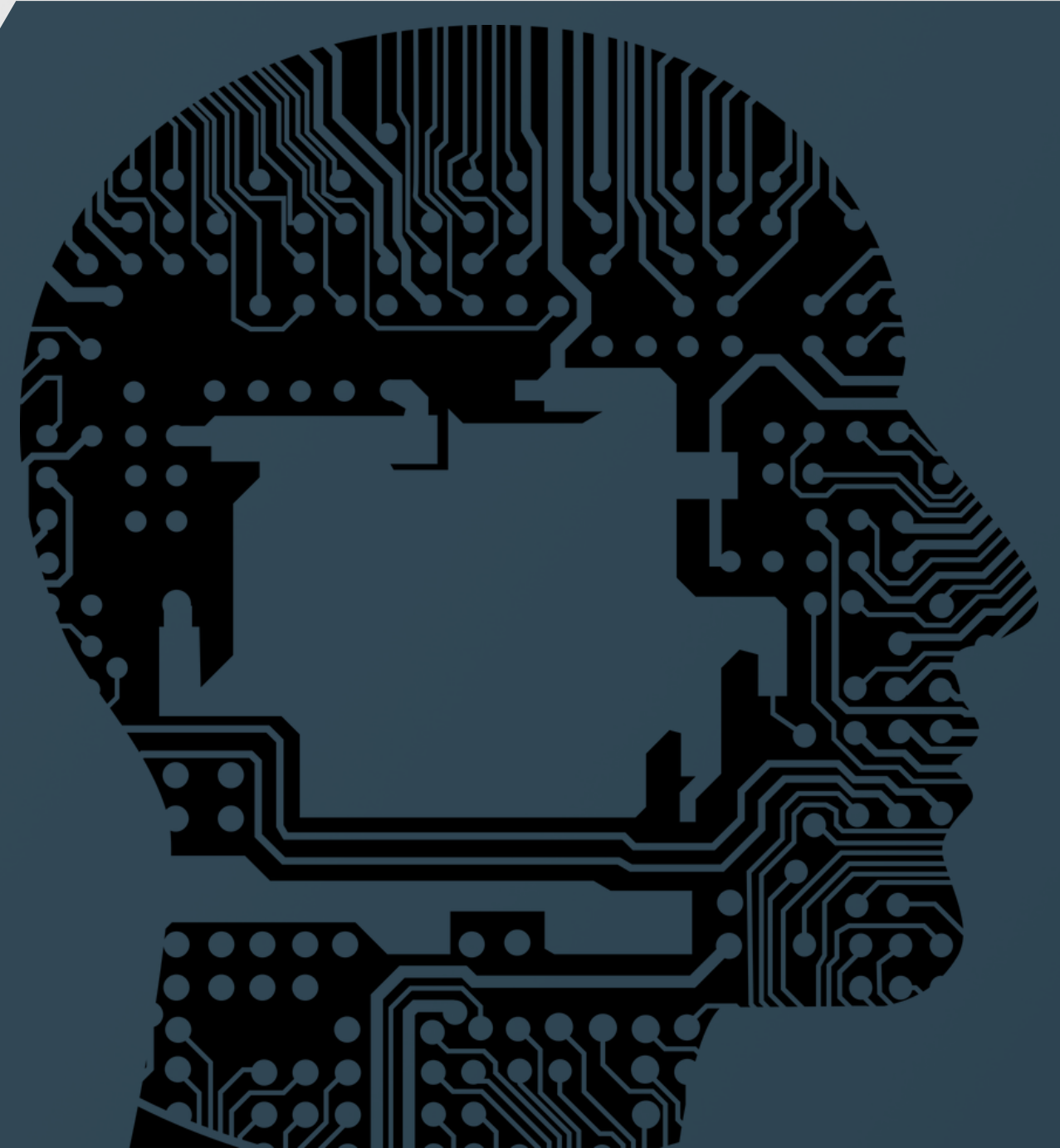


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Thank You



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brain@apps.ipb.ac.id



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