

Peranan Inovasi Kecerdasan Buatan Dan Sains Data Untuk Pembangunan Generasi Yang Lebih Baik

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Guru Besar Fakultas Teknik
Bidang Ilmu Informatika dan Sains Data

Guru Besar Pertama Bidang Komputer Universitas Mulawarman dan
Provinsi Kalimantan Timur

Pengukuhan dan Orasi Ilmiah Guru Besar
Kamis, 21 September 2023 - GOR 27 September, Universitas Mulawarman

A portrait of a man wearing a graduation cap and gown. He is wearing glasses and has a serious expression. The background is a soft, out-of-focus light blue and purple gradient. The text is overlaid on the left side of the image.

**Guru Besar Pertama Bidang
Komputer Universitas
Mulawarman dan Provinsi
Kalimantan Timur**

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Guru Besar Fakultas Teknik

Bidang Ilmu Informatika dan Sains Data



Kampus
Merdeka
INDONESIA JAYA



INAUGURASI

GURU BESAR FAKULTAS TEKNIK UNIVERSITAS MULAWARMAN



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Rektor
Universitas Mulawarman



Prof. Dr. Anegita
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dan Sains Data



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WAKIL REKTOR
Bidang Ilmu Hidrologi
Pertambangan



Prof. Dr. Ir. H. Tamrin
Rahman, S.T., M.T.

WAKIL REKTOR
Bidang Ilmu Hidrologi



Ir. Muhammad Dhanan Baftas,
S.T., M.T., IPU

Dekan Fakultas Teknik
Universitas Mulawarman

Video
Inaugurasi

AGENDA

**Kecerdasan
Buatan**

Sains Data

**Inovasi
Kecerdasan
Buatan**

**Inovasi Sains
Data**

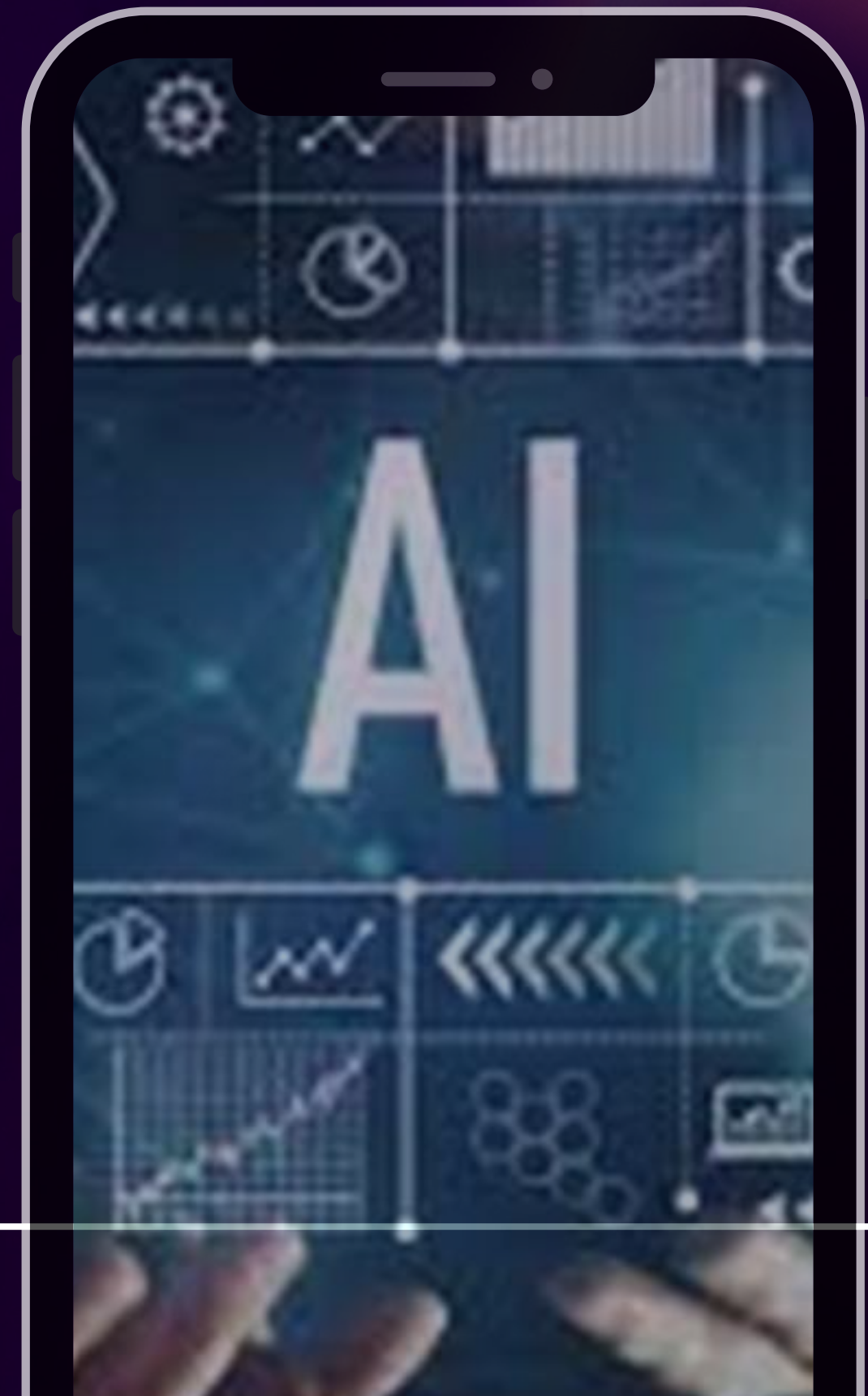
Kecerdasan Buatan

01 Kecerdasan buatan berasal dari kombinasi algoritma

03 Program yang melakukan pekerjaan "meminimalisir" bantuan manusia

02 Varian algoritma disebut Machine Learning

04 Kecerdasan buatan mulai dikenal di Indonesia sejak tahun 1980-an



ARTIFICIAL INTELLIGENCE

Programs with the ability to learn and reason like humans

MACHINE LEARNING

Algorithms with the ability to learn without being explicitly programmed

DEEP LEARNING

Subset of Machine Learning in which artificial neural networks adapt and learn from vast amount of data

“Kini bahasa bukan hanya bahasa Inggris, tetapi bahasa *coding* juga jauh lebih penting lagi untuk kedepannya. Terlebih bagi seorang *data scientist*”

(Presiden Joko Widodo, 2019)



**“Oil of the 21st
century is Data”**

**Sains data
adalah bidang
ilmu yang
memahami data**

**Data adalah
sumberdaya
paling
berharga
“terbaru” saat
ini**

Keilmuan sains data terdiri dari

Ilmu
Komputer

Machine
Learning

Matematika/
Statistik

SAINS
DATA

01

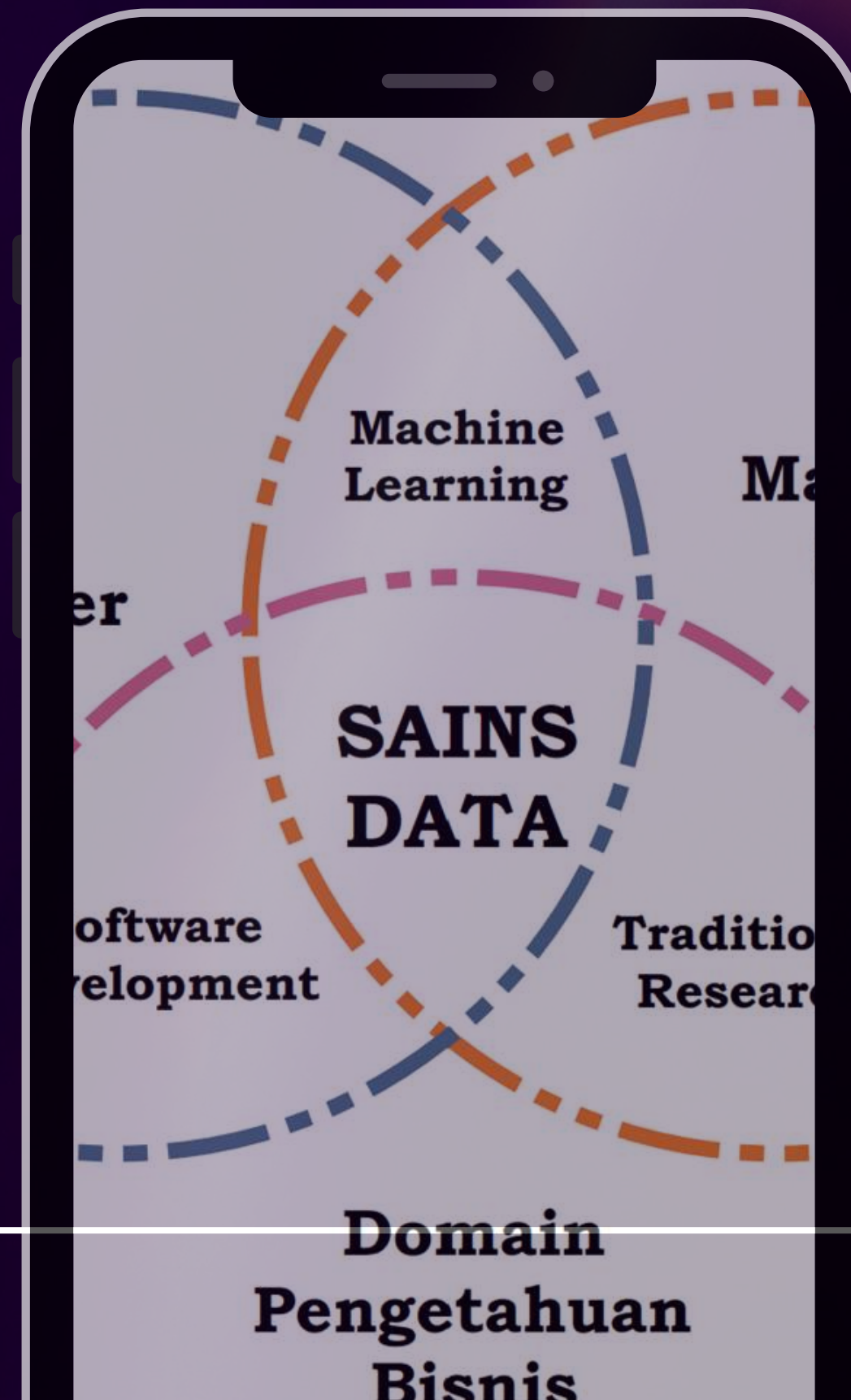
Computer science/
programming

03

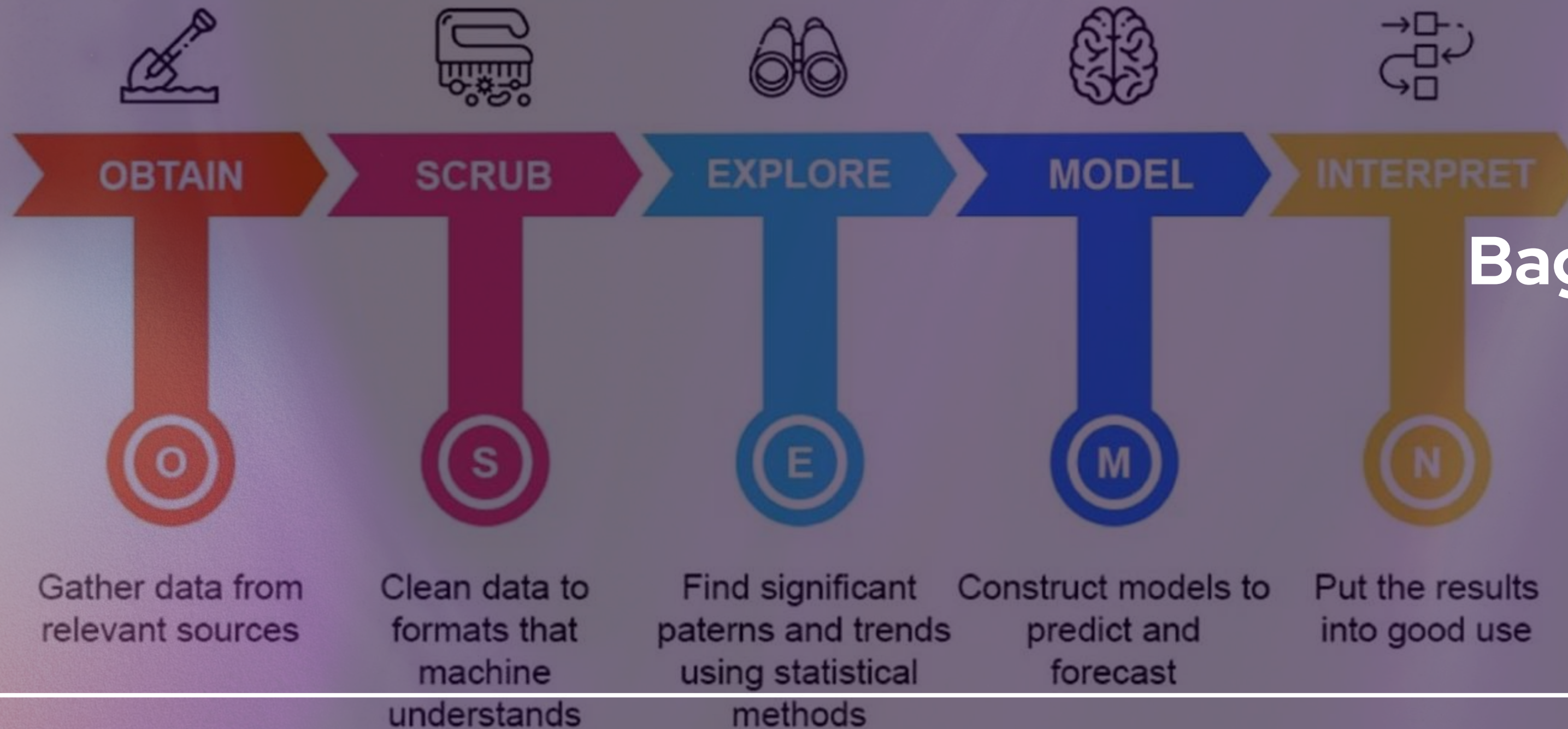
Pengetahuan bisnis
(*knowledge
representation*)

02

Matematika/
statistika
Domain
Pengetahuan
Bisnis
(*Mathematics/
statistics*)



DATA SCIENCE PROCESS



Bagaimana proses sains data dilakukan?



HEALTHCARE

Caption Health **theator** insitro
 Recursion OVERJET OWKIN
 UNLEARN Olive

SMART HOME

ORIGIN™
WIRELESS AI

CONSUMER DEVICES

Audio Analytic
FRITZ.AI

RETAIL & CPG

MSIGHT AIFI
 syte Vue.ai

MEDIA

descript

SUPPLY CHAIN & LOGISTICS

covariant OSARO
 INCEPTIO TECHNOLOGY Outrider

WASTE MANAGEMENT

AMP ROBOTICS
 greyparrot

FINANCE & INSURANCE

zesty.ai TRACTABLE
 AKUR8

FOOD & AGRICULTURE

prospera
 Aquabyte
 BEEWISE

DEFENSE

DEEPSIG

EDUCATION

ELSA
 Riid

MANUFACTURING

drishti
 LANDING AI

CONSTRUCTION

OPENSOURCE



LEGAL

LegalForce
 lexion

TRANSPORTATION

parallel domain Aurora algolux
 KONUX DEEPMAP GHOST
 momenta

MINING

KoBold Metals

GAMING

modl.ai

ENERGY

BRAINBOX AI
 myst ai

COMPUTING, DATA PROCESSING, AND AI DEPLOYMENT

CROSS-INDUSTRY AI APPLICATIONS

AI PROCESSORS

Horizon Robotics Tenstorrent blazeb
 SYNTIAN GRAPHCORE

DATA SCIENCE PLATFORMS

dataiku

MACHINE TRANSLATION

LILT

NLP & CONVERSATIONAL AI

Hugging Face RASA

DOCUMENT ANALYSIS

(h[s])[®] HYPERSCIENCE Eigen Technologies
 ROSSUM

CLIMATE RISK SCORING

JUPITER™

DEEP LEARNING ACCELERATORS

deci run:ai LatentAI

AIOPS (IT & DEVOPS AUTOMATION)

harness snyk
 StormForge

SPEECH RECOGNITION

DEEPGRAM

ENTERPRISE SEARCH

COVEO™ Jina

WATER LEAK DETECTION

cinnamon AI

WATER LEAK DETECTION

wint

DATA ANNOTATION

AI REVERIE scale
 SuperAnnotate

FEATURE STORES & MLOPS PLATFORMS

ALGORITHMIA

COMPUTER VISION

Matroid

REMOTE INSPECTION

PERCEPTO

SALES & CRM

Clari tact.ai

OTHER R&D

PRYON

COGENT

循环智能
Recurrent



Features of AI

Facial
Recognition

Data
Ingestion

Quantum
Computing



Deep
Learning

Automate
Tasks

Cloud
Computing

ChatBots



Data Science Topics and Areas

Data mining process

Data visualization

Dimension reduction

Classification

K-nearest neighbor

Linear regression models

Naive Bayes

Classification and regression trees

Logistic regression

Neural Networks

GIS and spatial data

Discriminant analysis

Association rules

Cluster analysis

Time series

Regression-based forecasting

Smoothing methods

Fraud detection

Time stamps and financial modeling

Data engineering

Future of Data Science



01

Increase in
Data Science
Roles



02

Clearly
defined
scope of
Data Science



03

Creation of
more jobs



04

Normalised
Data Science
Education



05

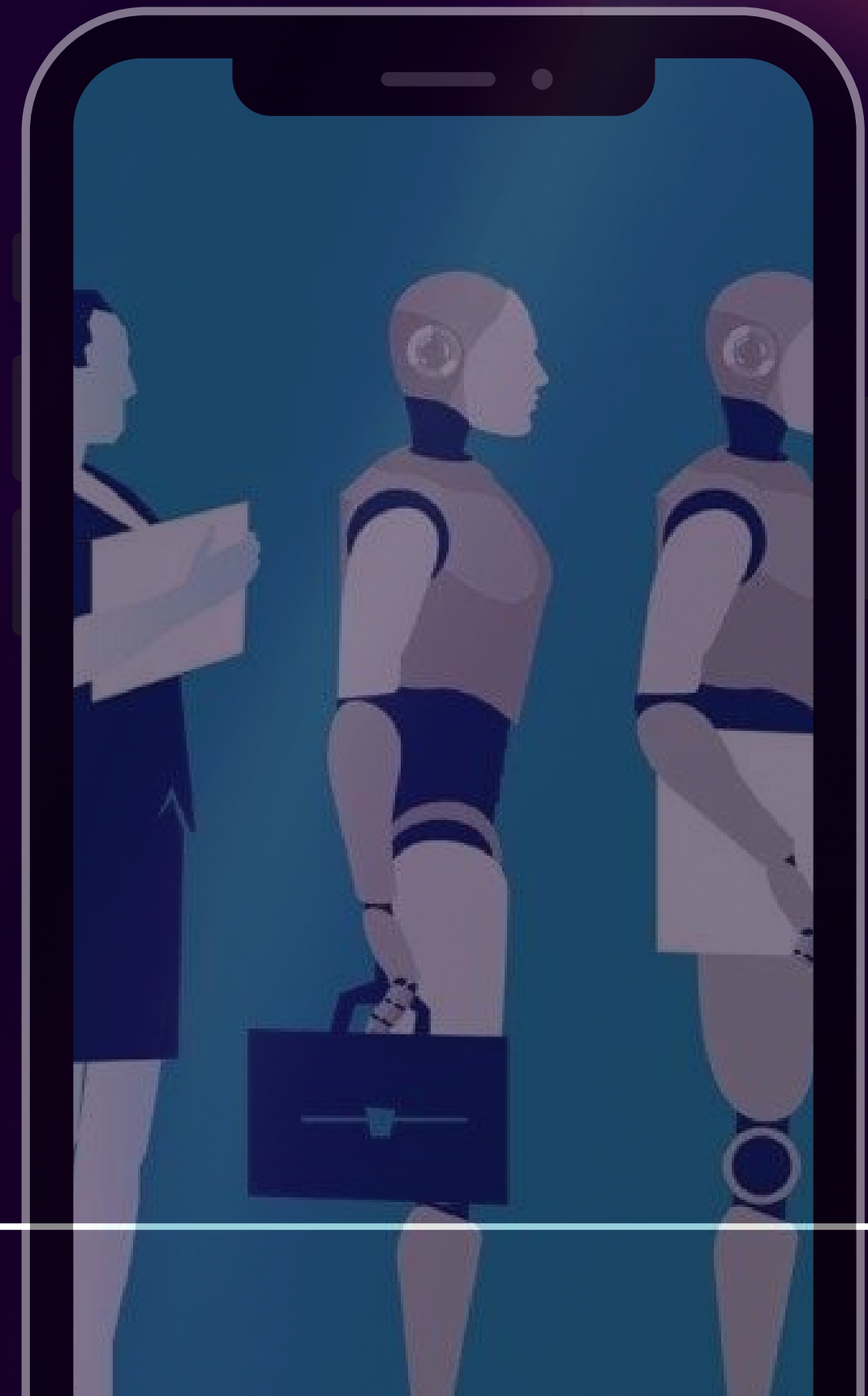
Advancements
in ML to foster
Data Science

Era kecerdasan buatan

01 Tidak menghilangkan peran manusia secara keseluruhan

02 Memberikan kemudahan hidup bagi manusia

03 Sains data sebagai sebuah profesi yang menjanjikan



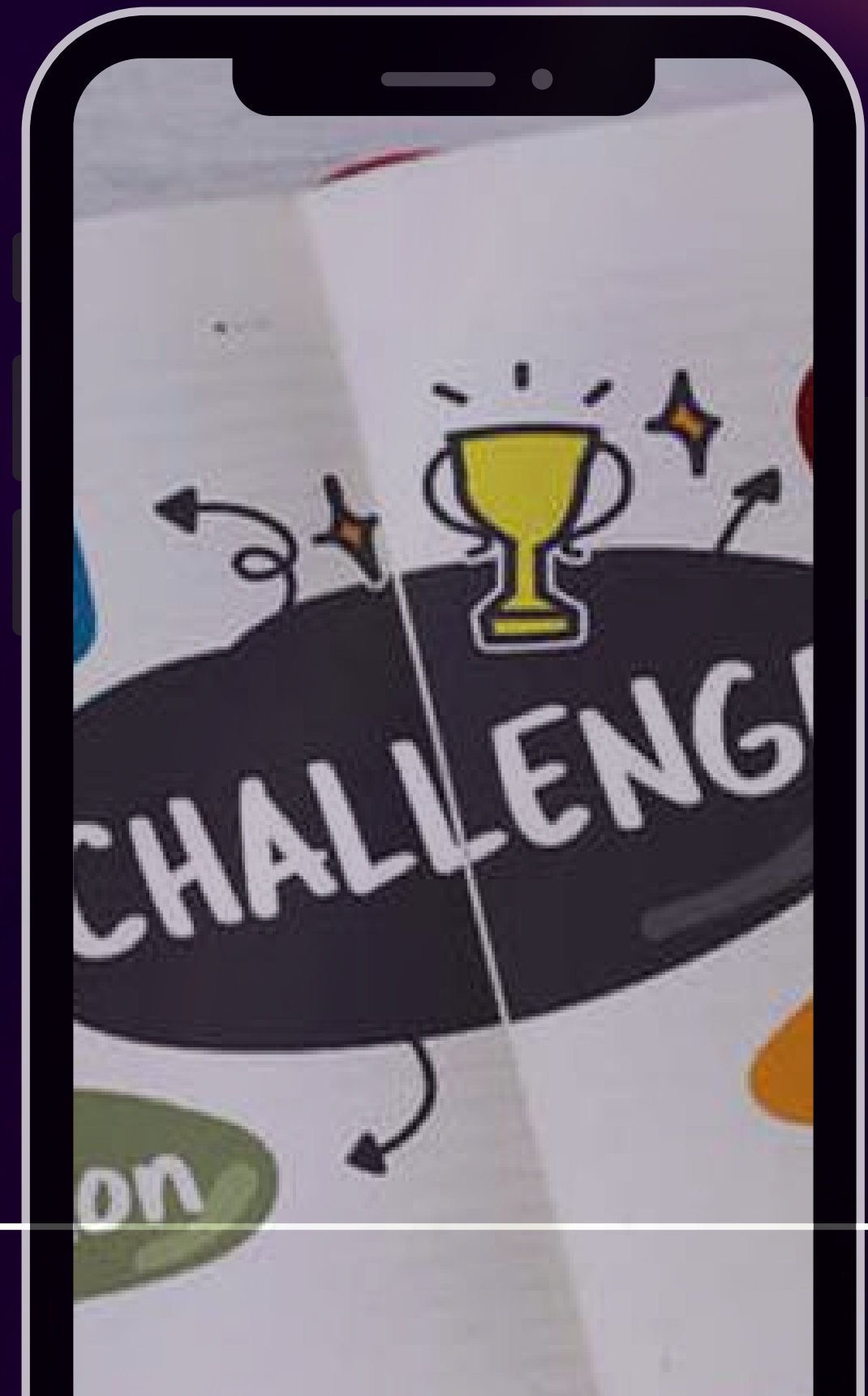
Tantangan - Kesiapan

01 Tenaga kerja terampil kecerdasan artifisial

02 Regulasi etika penggunaan dan pemanfaatan kecerdasan artifisial yang bertanggung jawab

03 Infrastruktur komputasi dan data pendukung pemodelan kecerdasan artifisial

04 Industri dan sektor-sektor publik dalam mengadopsi inovasi-inovasi kecerdasan artifisial



... Karya ...

Lecture Notes in Electrical Engineering 603

Rayner Alfred
Yuto Lim
Haviluddin Haviluddin
Chin Kim On *Editors*

Computational Science and Technology

6th ICCST 2019, Kota Kinabalu,
Malaysia, 29–30 August 2019

 Springer

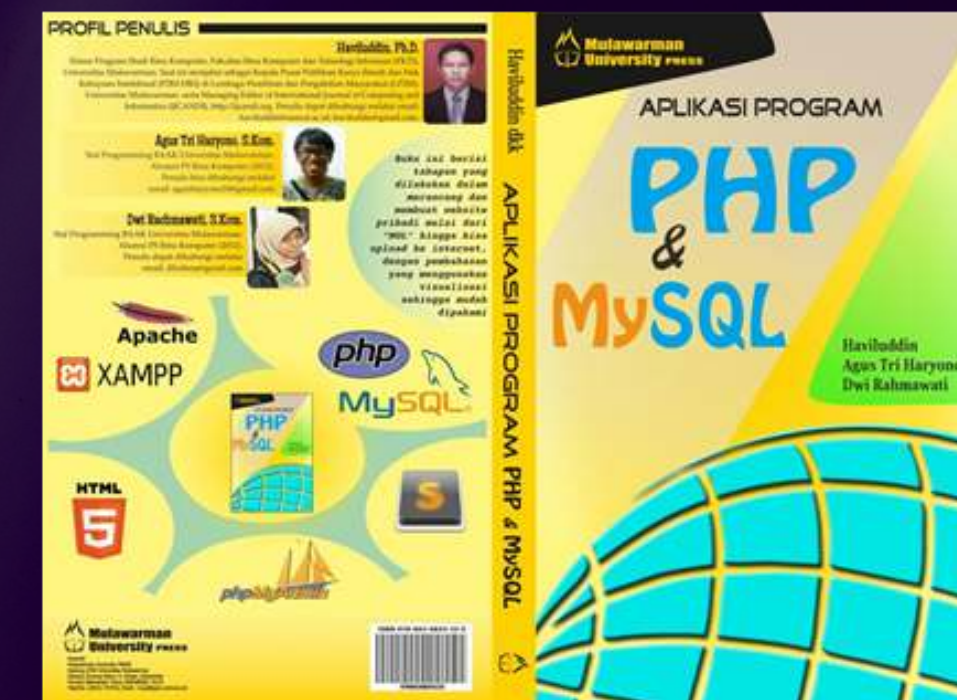
Lecture Notes in Electrical Engineering 724

Rayner Alfred
Hiroyuki Iida
Haviluddin Haviluddin
Patricia Anthony *Editors*

Computational Science and Technology

7th ICCST 2020, Pattaya, Thailand,
29–30 August, 2020

 Springer



Penghargaan

LIVE

SINTA SERIES : Pemeringkatan

500
Peneliti
Terbaik
Indonesia

Dua Dosen UNMUL Raih Prestasi Peneliti Terbaik SINTA 2020



RESEARCH INTEREST

data science, data mining, big data
analytics, artificial intelligence, time series
prediction and clustering

Thank
you

