

AIT – Austrian Institute of Technology

Molecular Diagnostics

Bioinformatics

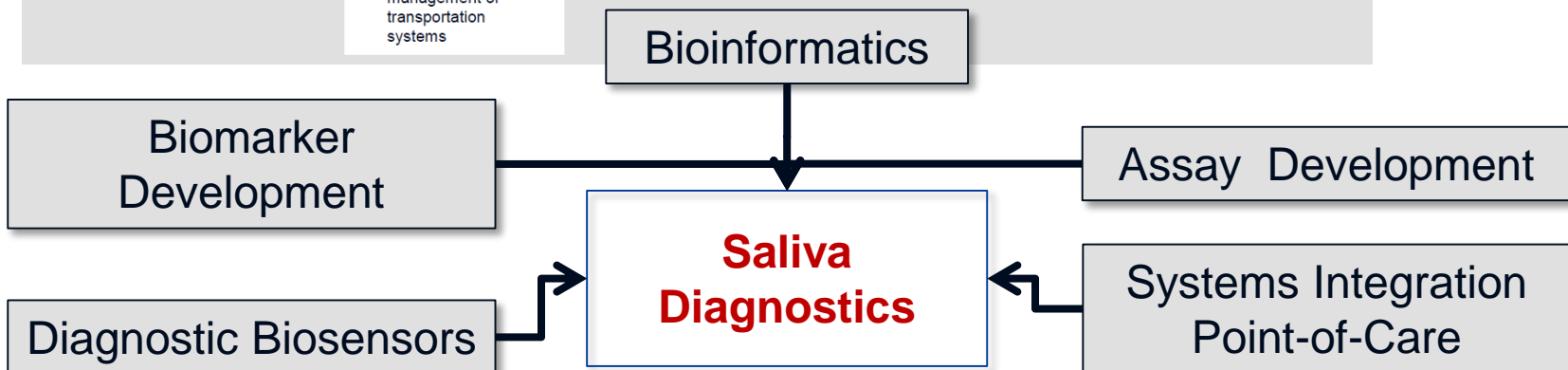
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AIT Research Areas and Fields in Future Infrastructure Themes

Department	Energy	Mobility	Safety & Security	Health & Environment	Innovation Systems
Research Area and Research Field	Energy Infrastructure <ul style="list-style-type: none"> Smart Grids Smart Buildings Photovoltaics Thermal Energy Systems 	Transportation Infrastructure <ul style="list-style-type: none"> Environmentally-friendly transport infrastructure Cost-effective and resilient transport infrastructure Innovative road infrastructure safety strategies 	Intelligent Vision Systems <ul style="list-style-type: none"> Multi-Camera Vision High-Speed Imaging 	Biomedical & Biomolecular Health Solutions <ul style="list-style-type: none"> Preclinical and Clinical Diagnostics Molecular Diagnostics AAL Ambient-Assisted Living Advanced Implant Solutions 	Foresight & Governance <ul style="list-style-type: none"> New R&I Processes and Systems Anticipatory Governance
	Integrated Energy Systems <ul style="list-style-type: none"> Smart Cities and Regions Complex Energy Systems 	Low-emission Transport <ul style="list-style-type: none"> High performance material Light-weight design of vehicle components Sustainable process 	Future Networks and Services <ul style="list-style-type: none"> Advanced Applications in Sensor Networks Next-Generation Content Management Systems Secure Information Access in Distributed Systems 	Resource Exploitation and Management <ul style="list-style-type: none"> Exploitation of Biological Resources Microbial Detection Green Processes 	Technology Experience <ul style="list-style-type: none"> Contextual Experience Experience Foundations
		Multi-Modal Mobility Systems <ul style="list-style-type: none"> Human factors for personal mobility Integrated management of transport systems Real-time dynamic management of transportation systems 	Highly Reliable Software and Systems <ul style="list-style-type: none"> Assessment and Testing of Autonomous and Safety-Critical Systems 		



Machine ID	HDD (TB)	RAM (GB)	Cores
C01	20	512	64
C02	20	128	64
C03	20	256	64
C04	20	256	64
C05	12	256	64
C06	16	48	16
C07	24	128	16
S01 (SAN)	96	64	32
	216	1648	384

Personnel

- Management by Platomics group and the AIT - bioinformatics team

Infrastructural setup

- Each machine contains several virtual containers (KVM, LXC, Docker)
- Currently no grid system
- Connected to the AIT network

Usage

- AIT molecular diagnostics
- Part of the system is used by Platomics

NGS Data analysis (internal PGM & external data)

- AmpliconSeq, WES, WGS, Bisulfite Seq
- Genome Assembly
- Metagenomics

Molecular dynamics simulation

- MARA – EU project – Simulation of DNA + protein-complex movement

Data analysis

- Various R packages
- Various bioinformatics packages

Thoughts and comments

- RStudio server?
- Use of Docker containers?
- Is AIT eligible to be part of / use HPC infrastructure?