Session 1: eHealth from clinical data collection & registry to population-wide initiatives in clinical neuroscience

<table>
<thead>
<tr>
<th>Time</th>
<th>Session Title</th>
<th>Speaker(s)</th>
<th>Chair</th>
<th>Moderator</th>
</tr>
</thead>
<tbody>
<tr>
<td>08:20</td>
<td>Introduction</td>
<td>J.F. Demonet</td>
<td></td>
<td></td>
</tr>
<tr>
<td>08:30-09:05</td>
<td>&quot;Deep generative modeling of neurology&quot;</td>
<td>P. Nachev</td>
<td></td>
<td></td>
</tr>
<tr>
<td>09:05-09:30</td>
<td>&quot;Population-based data to facilitate health promotion, prevention and clinical diagnosis related to brain health&quot;</td>
<td>M. Bochud</td>
<td></td>
<td></td>
</tr>
<tr>
<td>09:30-09:55</td>
<td>&quot;Large-scale studies in the aging general population&quot;</td>
<td>B. Draganski</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10:00-10:30</td>
<td>Panel discussion: P. Nachev, M. Bochud, B. Draganski</td>
<td>Moderator: A. Felbecker</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10:30-11:00</td>
<td>Coffee break</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11:00-11:35</td>
<td>&quot;A public health approach to dementia: structure of a WHO-compliant research program&quot;</td>
<td>E. Albanese</td>
<td></td>
<td></td>
</tr>
<tr>
<td>11:35-12:15</td>
<td>The Great Demographic Reversal: How Much Can Early Steps To Prevent Dementia Help?</td>
<td>M. Pradhan</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12:15-13:15</td>
<td>Lunch</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Session 2: Digital diagnostics as PoC for clinician and patients use

<table>
<thead>
<tr>
<th>Time</th>
<th>Session Title</th>
<th>Speaker(s)</th>
<th>Chair</th>
<th>Moderator</th>
</tr>
</thead>
<tbody>
<tr>
<td>13:50-14:15</td>
<td>&quot;The plateau of productivity: where are wearables?&quot;</td>
<td>S. Ewing</td>
<td></td>
<td></td>
</tr>
<tr>
<td>14:15-14:40</td>
<td>&quot;Sounds of Healthy Aging: Assessing Everyday Cognitive Activity From Real-Life Audio Data&quot;</td>
<td>B. Demiray</td>
<td></td>
<td></td>
</tr>
<tr>
<td>15:10-15:40</td>
<td>Coffee break</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Session 3: Scaling Multiomics for tailored Brain Health

<table>
<thead>
<tr>
<th>Time</th>
<th>Session Title</th>
<th>Speaker(s)</th>
<th>Chair</th>
<th>Moderator</th>
</tr>
</thead>
<tbody>
<tr>
<td>15:40-16:15</td>
<td>&quot;Multimodal Modeling of Brain Health: knowing what we don’t know&quot;</td>
<td>M. Hofmann-Apitius</td>
<td></td>
<td></td>
</tr>
<tr>
<td>16:15-16:40</td>
<td>&quot;Sex and gender differences in Alzheimer's - the gateway to precision medicine&quot;</td>
<td>M.T. Ferretti</td>
<td></td>
<td></td>
</tr>
<tr>
<td>16:40-17:05</td>
<td>&quot;PET-Imaging of Alzheimer’s Disease- the Value for Diagnosis, Prevention and Future Therapy&quot;</td>
<td>A. Gietl</td>
<td></td>
<td></td>
</tr>
<tr>
<td>17:05-17:35</td>
<td>Panel discussion: M. Hofmann-Apitius, M.T. Ferretti, A. Gietl</td>
<td>Moderator: B. Cuenod</td>
<td></td>
<td></td>
</tr>
<tr>
<td>17:35-18:15</td>
<td>&quot;Advancing Research Through Public Policy: A Case Study from the United States&quot;</td>
<td>M. Baumgart</td>
<td></td>
<td></td>
</tr>
<tr>
<td>18:15-18:30</td>
<td>Closing remarks and general discussion</td>
<td>Led by L. Alberi Auber</td>
<td></td>
<td></td>
</tr>
<tr>
<td>18:30</td>
<td>Apéro and dinner</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Program:

08:20: Welcome and introduction from host members of the organizing committee

Lavinia Alberi Auber, SICHH
Jean-Francois Demonet, CHUV

Session 1: eHealth from clinical data collection & registry to population-wide initiatives in clinical neuroscience

Chair B. Draganski

08:30 (30’ presentation + 5’ Q&A)
"Deep generative modeling of neurology" - Parashkev Nachev (UCL, London, UK)

- Models whose complexity is commensurate with that of the brain require data on a scale infeasible in any plausible research context.
To enable more complex modeling of the brain we must find a way to draw intelligence from the instrumentally heterogeneous clinical data that is the only kind we shall ever obtain at a sufficient scale. Here I outline an array of innovations—conceptual, technical, algorithmic, clinical, and political—that enable the creation and deployment of deep generative models of neurological data as a critical preliminary to subsequent discriminative modeling for predictive, prescriptive and inferential purposes.

09.05 (20’ presentation + 5’ Q&A)
“Population-based data to facilitate health promotion, prevention and clinical diagnosis related to brain health”- Murielle Bochud (Unisanté, Lausanne)
- Importance of longitudinal population-based data to describe the health status of the population, its major determinants and selected health trajectories
- What is health promotion? From the 1986 Ottawa Charter to the 2016 Shanghai Declaration.
- Public health principles applied to mental health: acting under uncertainty.

09:30 (20’ presentation + 5’ Q&A)
“Large-scale studies in the aging general population”- Bogdan Draganski (CHUV, Lausanne)
- Understanding the neurobiological underpinnings of brain aging is crucial to differentiate trajectories from disorders associated with age – dementia, late-life depression, attention and executive dysfunction, gait and balance problems, to name but a few.
- Prevention against the contributing risk factors would significantly reduce dementia prevalence and have a positive impact on the life quality of patients and the society that cares for them.
- I will present our investigations on the impact of modifiable lifetime factors on cognition and mood while monitoring brain anatomy in a large-scale sample from the general population (n >1200).

10:00 Panel discussion on the topic of E Health, moderated by A. Felbecker (KSSG, Saint Gallen)

10:30 Coffee break

11:00 (30’ presentation + 5’ Q&A)
“A public health approach to dementia: structure of a WHO-compliant research program”- Emiliano Albanese (USI/UGE, Lugano)
- The WHO action plan on a public health approach to dementia
- Awareness, the basic ingredient
- Articulation and synergies across the 7 action areas
- A structured research program: challenges and opportunities

11:35 Plenary Lecture (40’)
- Why the next 30 years will be nothing like the last 30 - inflation will rise, interest rates will rise and growth will remain sluggish
- The economic cost of ageing is being severely underestimated and medical costs of dementia will be responsible for gigantic increases in public debt and expenditure
- Early steps to prevent dementia can make a huge difference in this reversal, but too little is being done about it.

12:15 Lunch

Session II: Digital diagnostics as PoC for clinician and patients use
Chair – I. Meier

13:15 (30’ presentation + 5’ Q&A)
“Predictive Medicine and its Impact on the Future of Healthcare”- Emmanuel Fombu, (The Healthcare Futurist Institute, USA)
Predictive medicine is a revolutionary approach that combines genetic technology with proactive, personalized prevention.

Predictive medicine offers a simple and direct strategy for addressing Alzheimer’s disease.

13:50 (20’ presentation + 5’ Q&A)

“The plateau of productivity: where are wearables?” - Samuel Ewing (Biofourmis, Zürich)
- Review of the state of the art in monitoring human behaviour and physiology
- Implications of human behavior and physiology monitoring for mental health

14:15 (20’ presentation + 5’ Q&A)

“Sounds of Healthy Aging: Assessing Everyday Cognitive Activity From Real-Life Audio Data” - Burcu Demiray (University of Zürich)
- What is an Electronically Activated Recorder (EAR) and how can it be used as an ambulatory assessment tool to examine cognition?
- The theoretical and practical importance of examining real-life cognitive activities in healthy aging research
- New results on aging-relevant cognitive phenomena (e.g., autobiographical memory, language use)

14:40 Panel discussion on digital diagnostics, moderation to be mediated by Nicolas Loeillot

15:10 Coffee break

Session III: Scaling Multiomics for tailored Brain Health.

Chair L. Alberi

15:40 (30’ presentation + 5’ Q&A)

“Multimodal Modeling of Brain Health: knowing what we don’t know” - Martin Hofmann-Apitius, Fraunhofer Institute, Germany
- Modeling approaches in neuroscience: specific requirements for the modeling of brain health
- Multimodal and multiscale modeling of long-term brain health
- The current state of integrative modeling approaches suitable to predict healthy aging of the human brain

16:15 (20’ presentation+ 5 Q&A)

“Sex and gender differences in Alzheimer’s - the gateway to precision medicine” Maria Teresa Ferretti, UZH
- Update on sex differences in AD neuropathology (amyloid, tau, and inflammation)
- Update on sex/gender differences on key biomarkers used for diagnosis (imaging, CSF, cognitive scales)
- Implications for personalized-based diagnosis and treatment

16:40 (20’ presentation+ 5 Q&A)

“PET-Imaging of Alzheimer’s Disease- the Value for Diagnosis, Prevention and Future Therapy”- Anton Gietl (University of Zürich, Zürich)
- PET (FDG, Synaptic, Tau, Amyloid, Microgliial Activation) serve as diagnostic window
- Exploiting phenotypic heterogeneity of neurodegenerative disease (AD, DLB, FTLDs)
- Personalized and successful therapy

17:05 Panel discussion moderate by Bernard Cuenoud (Nestle Health Science, Lausanne)

17:35 Plenary lecture (40’)

“Advancing Research Through Public Policy: A Case Study from the United States”- Matthew Baumgart (Alzheimer’s Initiative Movement)
- The story behind the dramatic increase in Alzheimer’s research funding over the last several years in the US.
- How the U.S. The Alzheimer’s Association and the Alzheimer’s Impact Movement run a successful awareness and sensibilization campaign
- What lessons can be learned for similar efforts in other countries.
18:15-18:30 Closing Remarks Organizing committee BrainFit4Life & Q&A

- How to improve the popularity of brain aging across the public
- How to increase resources allocation
- How to maximize impact in the technological landscape of Switzerland

18:30 Apero’ and dinner