Also report the estimated 95% confidence intervals. Both VAF and AIC with respect to the reference model fitting in different subjects, we looked at the Information Criterion (AIC). For each subject, we identified performance-driven (greater error, greater recovery; B > 0) and error-driven (less error, less recovery; B < 0) recovery. To account for the differences in model complexity, we ran the fitting for the performance-driven model. The estimated model parameters are summarized in Table 1.

Finally, to understand whether the long-term effect of rehabilitation are related to the recovery dynamics, we correlated the changes of the estimated model parameters (A, B, S, and V) with the degree of impairment and response to treatment in the beginning and the end of the rehabilitation trials. For all the estimated model parameters, we checked for normality (Lilliefors' adaptation of the Kolmogorov-Smirnov test).

METHODS FOR NEUROREHABILITATION

We compared model parameters for each subject with the assumption that there is a duality between error and performance. By subtracting the estimated model's learning parameters (A, B, S, and V) with the corresponding error signal, we can determine the degree of assistance, and presence/absence of vision affects the recovery process.
WINTER SCHOOL ON COMPUTATIONAL METHODS FOR NEUROREHABILITATION

• to learn theoretical and practical aspects of motor control and modelling for neurorehabilitation

• with top speakers in this novel field

• organised by the European Network on Robotics of NeuroRehabilitation (www.rehabilitationrobotics.eu)

• Committee: Etienne Burdet, Thierry Keller, Andrew Pennycott, David Ram, Vittorio Sanguineti, Duncan Turner, Sivakumar Balasubramanian, Nathanael Jarrasse
WINTER SCHOOL ON COMPUTATIONAL METHODS FOR NEUROREHABILITATION

- 40 “students” and 15 speakers & mentors
- in Obertauern (between Salzburg and Graz)
- Hotel der Schuetz: http://www.hotel-schuetz.at
WINTER SCHOOL ON COMPUTATIONAL METHODS FOR NEUROREHABILITATION

• 27-31 January 2014

• Tue, Wed, Thu, Fri morning (i.e., travel on Monday&Friday or can stay on the WE)

• everyday (8-12am): 3-4 lectures in the morning

• afternoon: practicals in ski biomechanics and sensorimotor control

• evening (7-9pm): mini-project in groups of 4-5
HOW TO GO THERE?

Arriving at Salzburg airport

- Shuttle service (~31 EUR single, see http://www.obertauern.com/en/winter/local-info/fly-shuttle/fromto-salzburg.html)

- Train from Salzburg to Radstadt (~1h20’, ~15 EUR), see https://ticketing.oebbb.at. Once in Radstadt, you continue to Obertauern (Passhöhe) using the postbus or taxi (takes ~30’), see http://www.obertauern.com/en/winter/local-info/arrival/rail-bus-taxi.html
HOW TO GO THERE?

Arriving at Munich airport

- Take the train from Munich to Radstadt. Train is every 2 hours (~3h15’, ~50 EUR), see http://www.bahn.com/i/view/GBR/en/

- Once in Radstadt, you continue to Obertauern (Passhöhe) using the postbus or taxi (takes ~30’), see http://www.obertauern.com/en/winter/local-info/arrival/rail-bus-taxi.html
TUESDAY: COMPUTATIONAL MOTOR CONTROL METHODS

• Making sense of muscle activity in sensorimotor deficits and neurorehabilitation (Lena Ting, Emory University and Georgia Tech)

• Multisensory integration, motor adaptation and motion optimisation (Etienne Burdet, Imperial College London)

• Reinforcement learning, reward, optimal control (Emmanuel Guigon, Universite Pierre & Marie Curie)

• Mini projects (Nathanael Jarrasse, CNRS)
WEDNESDAY: MECHANISMS OF MOTOR RECOVERY

- Understanding motor recovery post stroke (Gert Kwakkel, Vrije Universiteit, Amsterdam)

- Mechanisms of brain recovery (Duncan Turner, University of East London)

- Muscle synergies and neuromotor recovery (Andrea d’Avella, Fondazione Santa Lucia)

- Sensor-based assessment of the sensorimotor function (Sivakumar Balasubramanian, Tecnalia)
THURSDAY: MODELS TO IMPROVE THERAPY

• Modelling cortical reorganisation following stroke (Holly Rossiter, University College London)

• Neuromotor recovery at functional level (Vittorio Sanguineti, Università Degli Studi di Genova)

• Use of arm induced by therapy (Nicolas Schweighofer, University of Southern California)
FRIDAY:

- Results of lab activities: All attendees
- Panel discussion on computational neurorehabilitation: All speakers