# Weekly Work Report 6/6/2025

**This Week:**

* Literature review for Aha! Moments
* Aha! Moments Hand-on Exploration
  + Label: Pupil + Hand Raising vs Hand Raising
  + Balanced vs Imbalanced data
  + New Approach: Label with Sequences

Kounios, J., & Beeman, M. (2020). *The Aha! moment: The science behind creative insights*. In T. Goel (Ed.), *Toward super-creativity – Improving creativity in humans, machines, and human–machine collaborations* (pp. 1–23). IntechOpen. https://doi.org/10.5772/intechopen.84973

1. **Combined Use of EEG and fMRI**: Neuroscientists use EEG for precise timing and fMRI for precise localization to map the neural correlates of insight. Together, these tools identify the brain areas and moments involved in Aha! experiences.
2. **Compound Remote Associates Tasks (CRAT)**: These tasks are ideal for insight research, as they can be solved via either analysis or insight, without differences in complexity, allowing for clean measurement of cognitive strategies across many trials.
3. **Neural Signature of Insight**: Insight moments are marked by a sudden burst of **gamma-band activity** over the **right anterior superior temporal gyrus**, while analytic problem-solving does not show this gamma increase.
4. **Alpha Preceding Gamma**: A **rise in alpha-band activity** (~1.5 seconds before gamma) suggests the brain is inhibiting visual input to minimize distractions — a preparatory step for insight to emerge.

expect that the spatial Aha! moment of reorientation will be accompanied by the following response-related brain dynamics: a parietal alpha decrease (channels P7 & P8) and a frontocentral theta increase (channels FC5 & FC6).

 EEG power in the right hemisphere channels (i.e. alpha ERD at

P8, delta-theta ERS at F4 & FC6).

1. **Distinct Neural States**: Insight and analysis are preceded by **different patterns of resting-state brain activity**, indicating that the brain may prepare differently depending on the type of solution that will arise.
2. **Role of the Anterior Cingulate Cortex (ACC)**: The ACC helps integrate weakly activated or distant ideas, facilitating non-obvious solutions during insight, especially when dominant solution paths are blocked.

A close-up of a human head

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A screenshot of a graph

AI-generated content may be incorrect.