
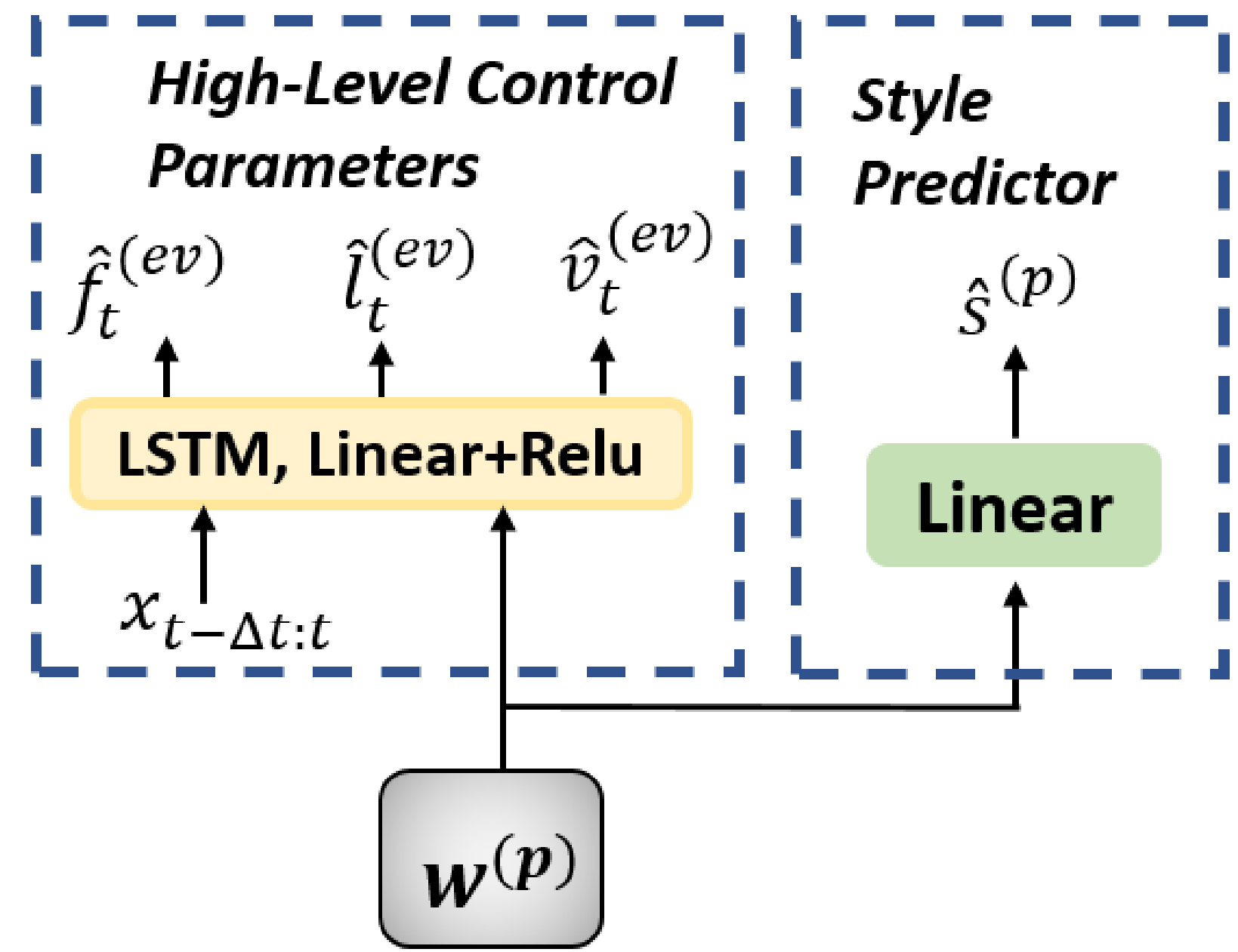
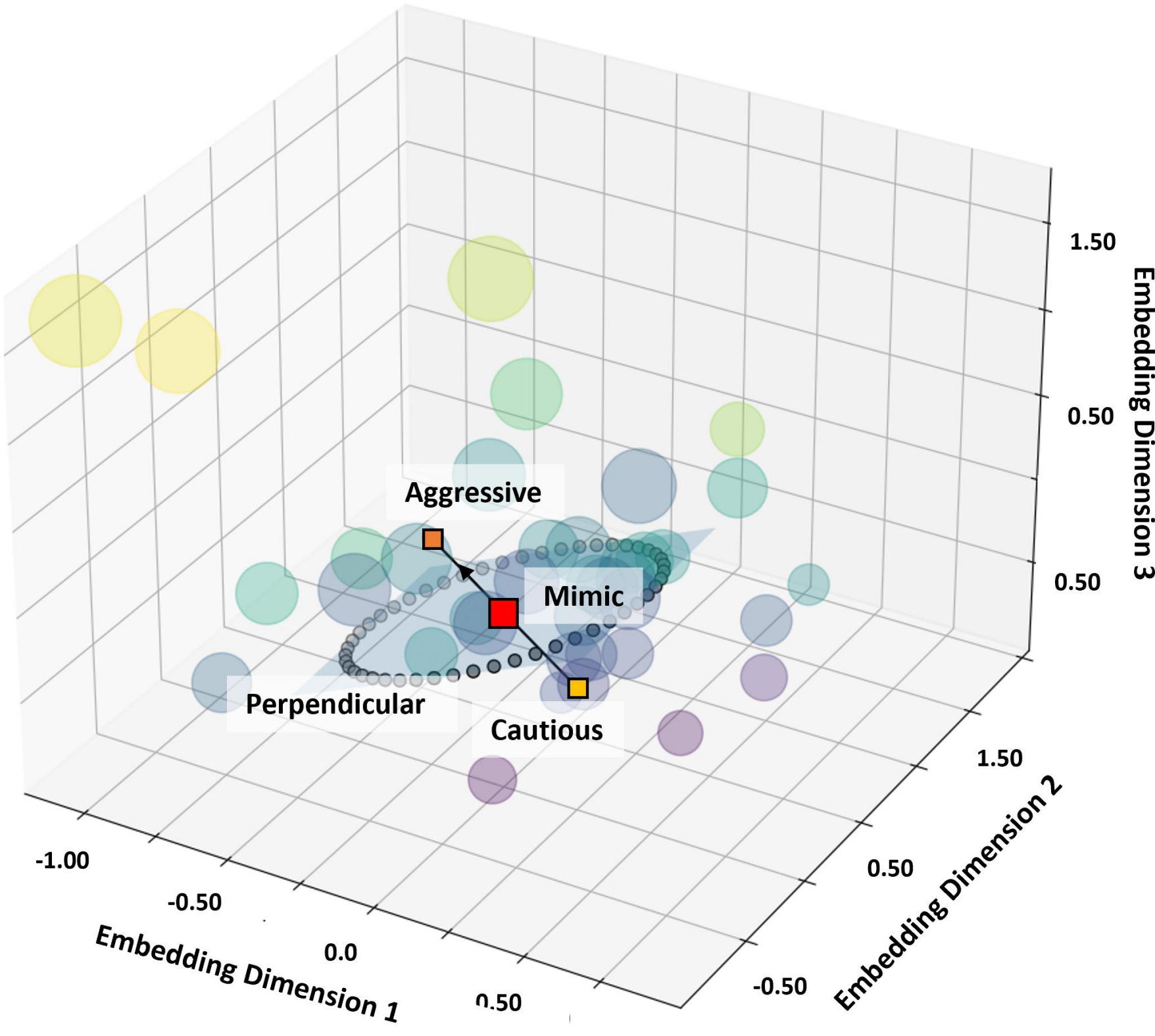
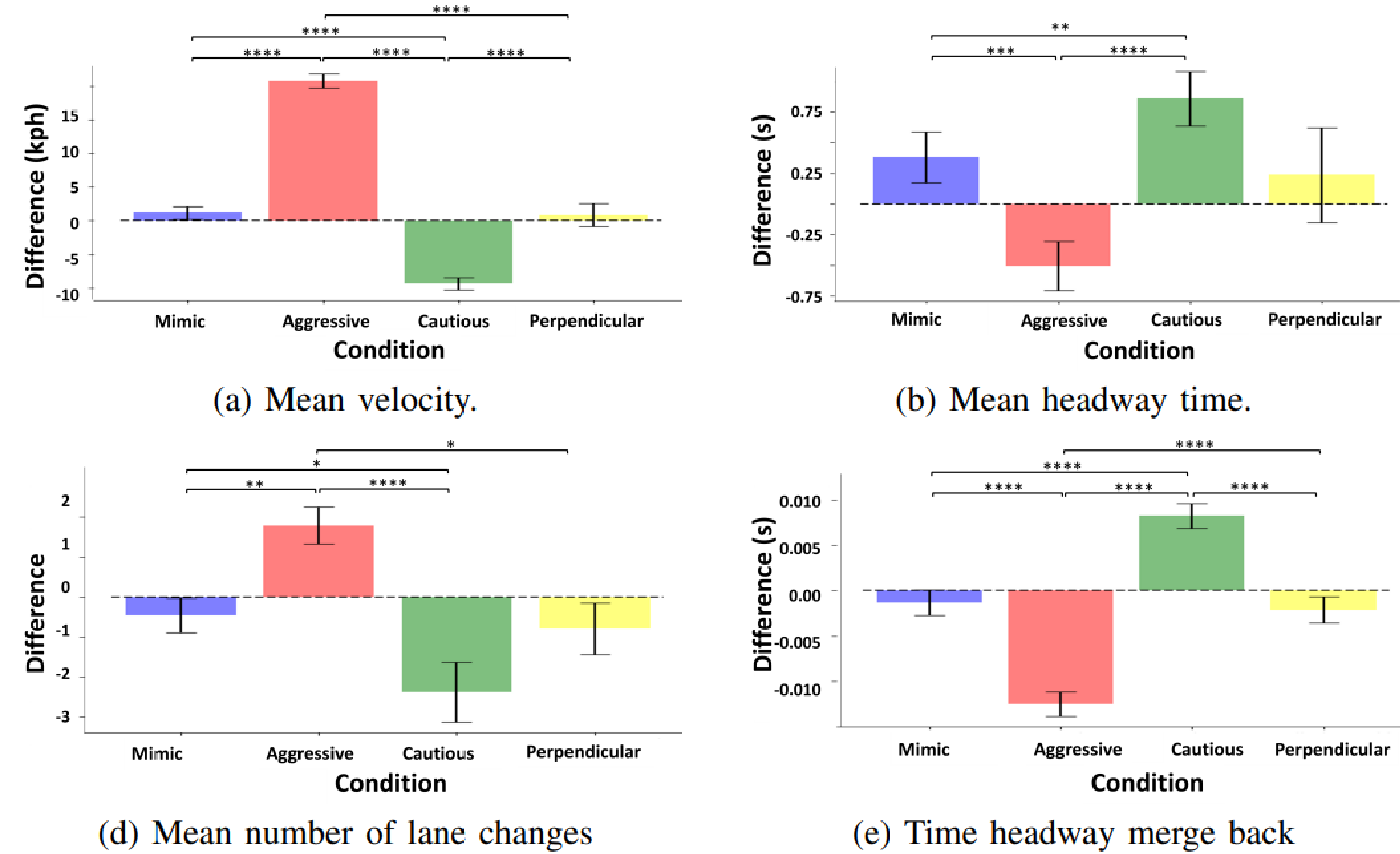
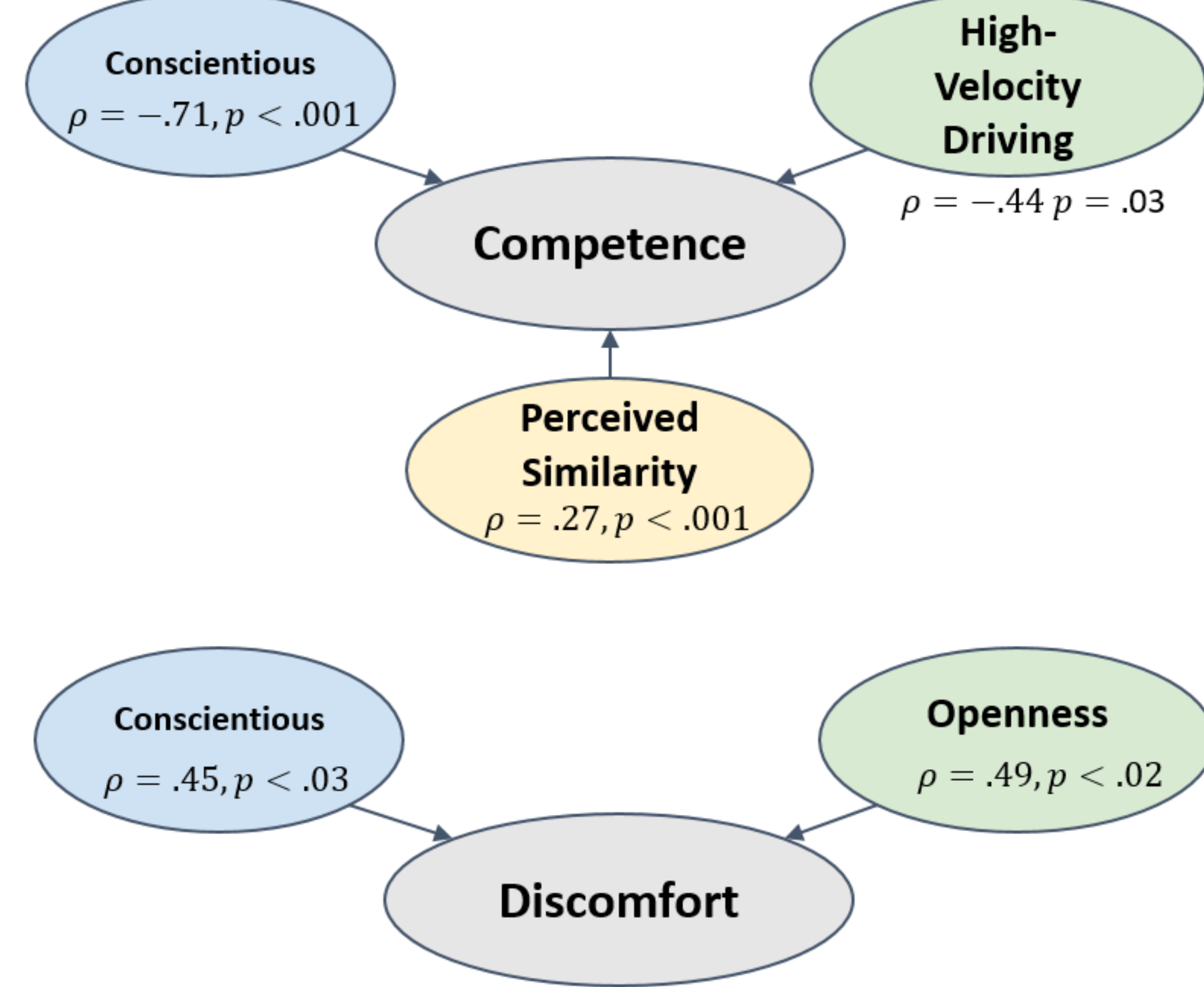


| Motivation | Domain | Approach | Conditions |
|---|---|---|---|
| <ul style="list-style-type: none"> Driving style: driving characteristics related to judgement and decisions in specific situations [1] Autonomous vehicle (AV) driving style can impact [2,3] <ul style="list-style-type: none"> Trust Acceptance Motion Sickness Overall experience Mimicking driving style may not be best option [4]  <p>Homophily: tendency to be attracted to a style similar to own</p> | <ul style="list-style-type: none"> Light traffic Decisions related to <ul style="list-style-type: none"> Velocity Following distance Lane changes <p>Participants</p> <ul style="list-style-type: none"> Training participants <ul style="list-style-type: none"> 30 from TRI Testing participants <ul style="list-style-type: none"> 24 from TRI and general population | <ul style="list-style-type: none"> Collect data related to driving style of participant Learn personalized embedding Learn to predict controller parameters <ul style="list-style-type: none"> Following distance Velocity Lane change Low level controllers execute personalized decisions Participants experience four AV conditions  <p>Style predictor subnetwork enables us to determine gradient of aggression</p> |  <ul style="list-style-type: none"> Mimic – utilize learned personalized embedding to mimic style Aggressive – shift embedding in positive aggressive gradient to produce more aggressive driving Cautious – shift embedding in negative aggressive gradient to produce less aggressive driving Perpendicular – shift embedding in plane of aggression |
| <ul style="list-style-type: none"> Level of aggression can impact homophily [5] <p>Can we optimize driving style to fit preference of end-user?</p> | <p>Can we mimic style and modulate aggression?</p>  <p>(a) Mean velocity. (b) Mean headway time. (c) Mean number of lane changes. (d) Time headway merge back.</p> <p>Mimic produces similar, Aggressive more aggressive and Cautious more cautious driving styles</p> | <p>What factors modulate homophily?</p>  <p>Personality, high-velocity driving style, and perceived similarity impact effect of homophily</p> | <p>Contributions</p> <ol style="list-style-type: none"> Formulate MAVERIC, a framework to personalize driving style and modulate aggressiveness Demonstrate that MAVERIC can match end-user's driving style ($p < .001$), produce more aggressive ($p < .001$), and more cautious ($p < .001$) behavior Find that personality ($p < .001$), perceived similarity ($p < .001$), and high-velocity driving style ($p = .0031$) impact homophily. |
| <p>Objectives</p> <ol style="list-style-type: none"> Formulate framework, MAVERIC, to personalize driving style & modulate aggression Show MAVERIC can objectively and subjectively mimic and modulate style Investigate factors modulating homophily | | | |