**Electronic Supplemental Material**

**Using a robotic fish to investigate individual differences in social responsiveness in the guppy (S2)**

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**Calculation of average time-delayed cross-correlation (TLXC)**

We calculated the time-delayed normalized cross correlation function for different values of the lagtime *τ*: *C(τ)=< v(t)vf(t+τ)>t* with *vf* being the velocity of the focal individual and *<...>t* indicating a time average over all points where *v(t)vf(t+τ)* is defined. As the cross correlation, requires the shifting of the velocity vector of the focal individual by *k* points, with *τ=kΔt* (*Δt:* time difference between two time frames), the time average for different *τ* (different *k*) has to be taken over *kavg=* $\left⌊(T-τ)/∆t\right⌋$ points where *v(t)vf(t+τ)* is defined. Here *T* is the total trajectory duration used in experiments *T=120s.* For example for *τ =3s*  and *Δt=0.111,* we obtain *kavg=* 1053. Eventually, we calculated **TLXC** as the average *C(τ)* over a finite range of timelags (*τ =*0 - 6s): **TLXC***=< C(τ) >*.