CLAIMS

1. A method of wireless communication in a wireless communication network, the method comprising, at a scheduled entity: receiving a first uplink control information (UCI) resource grant allocating a first set of resource elements for use by the scheduled entity to transmit first uplink control information to a scheduling entity; receiving a second UCI resource grant allocating a second set of resource elements for use by the scheduled entity to transmit second uplink control information to the scheduling entity; combining the first set of resource elements for the first UCI resource grant with the second set of resource elements for the second UCI resource grant to produce a combined set of resource elements, in response to a time difference between the first set of resource elements and the second set of resource elements being less than a threshold indicating that the first UCI resource grant and the second UCI resource grant occur within a same time period, wherein the threshold corresponds to the time period; and multiplexing the first uplink control information and the second uplink control information on the combined set of resource elements.

2. The method of claim 1, wherein the threshold comprises at least one transmission time interval, each corresponding to a set of one or more orthogonal frequency division multiplexed (OFDM) symbols, a mini-slot, a slot, or a set of two or more slots.

3. The method of claim 2, wherein the at least one transmission time interval comprises a single transmission time interval, two overlapping transmission time intervals, or two non-overlapping transmission time intervals.

4. The method of claim 3, wherein the at least one transmission time interval comprises the two non-overlapping transmission time intervals and the threshold is equal to a maximum time period between a start or an end of a first transmission time interval of the two non-overlapping transmission time intervals and a start or an end of a second transmission time interval of the two non-overlapping transmission time intervals.

5. The method of claim 2, wherein: the time difference is between a start of the first UCI

resource grant and a start of the second UCI resource grant; the threshold corresponding to the time period is equal to a single OFDM symbol; and selecting at least one of the first UCI resource grant or the second UCI resource grant based on the one or more grant selection rules further comprises: selecting at least one of the first UCI resource grant or the second UCI resource grant based on the one or more grant selection rules when the time difference is less than the single OFDM symbol such that the start of the first UCI resource grant and the start of the second UCI resource grant are aligned in time.

6. The method of claim 2, wherein: the time difference is between an end of the first UCI resource grant and an end of the second UCI resource grant; the threshold corresponding to the time period is equal to a single OFDM symbol; and selecting at least one of the first UCI resource grant or the second UCI resource grant based on the one or more grant selection rules further comprises: selecting at least one of the first UCI resource grant or the second UCI resource grant based on the one or more grant selection rules when the time difference is less than the single OFDM symbol such that the end of the first UCI resource grant and the end of the second UCI resource grant are aligned in time.

7. The method of claim 2, wherein: the time difference comprises a first time difference between a start of the first UCI resource grant and a start of the second UCI resource grant and a second time difference between an end of the first UCI resource grant and an end of the second UCI resource grant; the threshold corresponding to the time period is equal to a single OFDM symbol; and selecting at least one of the first UCI resource grant or the second UCI resource grant based on the one or more grant selection rules further comprises: selecting at least one of the first UCI resource grant or the second UCI resource grant based on the one or more grant selection rules when the first time difference is less than the single OFDM symbol and the second time difference is less than the single OFDM symbol such that the first UCI resource grant and the end of the second UCI resource grant are completely aligned in time.

8. The method of claim 1, wherein the combined set of resource elements comprises a physical uplink control channel (PUCCH) resource when the first UCI resource grant comprises a first PUCCH grant and the second UCI resource grant comprises a second PUCCH grant.

9. The method of claim 1, wherein the combined set of resource elements comprises a physical uplink shared channel (PUSCH) grant when at least one of the first UCI resource grant or the second UCI resource grant comprises a PUSCH grant.

10. A method of wireless communication in a wireless communication network, the method comprising, at a scheduled entity: receiving a first uplink control information (UCI) resource grant allocating a first set of resource elements for use by the scheduled entity to transmit first uplink control information to a scheduling entity, wherein the first UCI resource grant comprises a semi-static UCI resource grant, the first uplink control information comprises periodic uplink control information; receiving a second UCI resource grant allocating a second set of resource elements for use by the scheduled entity to transmit second uplink control information to the scheduling entity, wherein the second UCI resource grant comprises a dynamic UCI resource grant, and the second uplink control information comprises aperiodic uplink control information; and selecting at least one of the first UCI resource grant or the second UCI resource grant based on one or more grant selection rules, in response to a time difference between the first set of resource elements and the second set of resource elements being less than a threshold indicating that the first UCI resource grant and the second UCI resource grant occur within a same time period, wherein the threshold corresponds to the time period.

11. The method of claim 10, wherein selecting at least one of the first UCI resource grant or the second UCI resource grant further comprises: selecting the semi-static UCI resource grant; and multiplexing the periodic uplink control information and at least part of the aperiodic uplink control information on the first set of resource elements.

12. The method of claim 11, wherein: the dynamic UCI resource grant comprises a dynamic resource trigger identifying the aperiodic uplink control information; and the multiplexing the periodic uplink control information and at least part of the aperiodic uplink control information on the first set of resource elements is triggered by the dynamic resource trigger.

13. The method of claim 10, wherein selecting at least one of the first UCI resource grant or the

second UCI resource grant further comprises: selecting the dynamic UCI resource grant; and multiplexing the aperiodic uplink control information and at least part of the periodic uplink control information on the second set of resource elements.

14. The method of claim 10, wherein selecting at least one of the first UCI resource grant or the second UCI resource grant further comprises: selecting one of the semi-static UCI resource grant or the dynamic UCI resource grant that occurs earlier in time or comprises a larger set of resources.

15. A method of wireless communication in a wireless communication network, the method comprising, at a scheduled entity: receiving a first uplink control information (UCI) resource grant allocating a first set of resource elements for use by the scheduled entity to transmit first uplink control information to a scheduling entity; receiving a second UCI resource grant allocating a second set of resource elements for use by the scheduled entity to transmit second uplink control information to the scheduling entity; selecting both the first UCI resource grant and the second UCI resource grant, in response to a time difference between the first set of resource elements and the second set of resource elements being less than a threshold indicating that the first UCI resource grant and the second UCI resource grant occur within a same time period, wherein the threshold corresponds to the time period; transmitting the first uplink control information and the second uplink control information on the first set of resource elements; and transmitting the first uplink control information and the second uplink control information on the second set of resource elements.

16. A method of wireless communication in a wireless communication network, the method comprising, at a scheduled entity: receiving a first uplink control information (UCI) resource grant allocating a first set of resource elements for use by the scheduled entity to transmit first uplink control information to a scheduling entity; receiving a second UCI resource grant allocating a second set of resource elements for use by the scheduled entity to transmit second uplink control information to the scheduling entity; and selecting at least one of the first UCI resource grant or the second UCI resource grant based on one or more grant selection rules, in response to a time difference between the first set of resource elements and the second set of

resource elements being less than a threshold indicating that the first UCI resource grant and the second UCI resource grant occur within a same time period, wherein the threshold corresponds to the time period, and wherein the one or more grant selection rules are based on at least one of a payload type of at least one of the first uplink control information or the second uplink control information, a payload size of at least one of the first uplink control information or the second uplink control information, a waveform type of at least one of the first UCI resource grant or the second UCI resource grant, a transmit-diversity scheme of at least one of the first UCI resource grant or the second UCI resource grant, time resources utilized by at least one of the first set of resource elements or the second set of resource elements, or frequency resources utilized by at least one of the first set of resource elements or the second set of resource elements, or some combination thereof.

17. A scheduled entity in wireless communication with a scheduling entity in a wireless communication network, comprising: a processor; a transceiver communicatively coupled to the processor; and a memory communicatively coupled to the processor, wherein the processor is configured to: receive a first uplink control information (UCI) resource grant allocating a first set of resource elements for use by the scheduled entity to transmit first uplink control information to the scheduling entity via the transceiver; receive a second UCI resource grant allocating a second set of resource elements for use by the scheduled entity to transmit second uplink control information to the scheduling entity via the transceiver; combine the first set of resource elements for the first UCI resource grant with the second set of resource elements for the second UCI resource grant to produce a combined set of resource elements, in response to a time difference between the first set of resource elements and the second set of resource elements being less than a threshold indicating that the first UCI resource grant and the second UCI resource grant occur within a same time period, wherein the threshold corresponds to the time period; and multiplex the first uplink control information and the second uplink control information on the combined set of resource elements.

18. The scheduled entity of claim 17, wherein the threshold comprises at least one transmission time interval, each corresponding to a set of one or more orthogonal frequency division multiplexed (OFDM) symbols, a mini-slot, a slot, or a set of two or more slots.

19. The scheduled entity of claim 18, wherein the at least one transmission time interval comprises a single transmission time interval, two overlapping transmission time intervals, or two non-overlapping transmission time intervals.

20. The scheduled entity of claim 19, wherein the at least one transmission time interval comprises the two non-overlapping transmission time intervals and the threshold is equal to a maximum time period between a start or an end of a first transmission time interval of the two non-overlapping transmission time intervals and a start or an end of a second transmission time interval of the two non-overlapping transmission time intervals.

21. The scheduled entity of claim 18, wherein: the time difference is between a start of the first UCI resource grant and a start of the second UCI resource grant; the threshold corresponding to the time period is equal to a single OFDM symbol; and the processor is further configured to: select at least one of the first UCI resource grant or the second UCI resource grant based on the one or more grant selection rules when the time difference is less than the single OFDM symbol such that the start of the first UCI resource grant and the start of the second UCI resource grant are aligned in time.

22. The scheduled entity of claim 18, wherein: the time difference is between an end of the first UCI resource grant and an end of the second UCI resource grant; the threshold corresponding to the time period is equal to a single OFDM symbol; and the processor is further configured to: select at least one of the first UCI resource grant or the second UCI resource grant based on the one or more grant selection rules when the time difference is less than the single OFDM symbol such that the end of the first UCI resource grant and the end of the second UCI resource grant are aligned in time.

23. The scheduled entity of claim 18, wherein: the time difference comprises a first time difference between a start of the first UCI resource grant and a start of the second UCI resource grant and a second time difference between an end of the first UCI resource grant and an end of the second UCI resource grant; the threshold corresponding to the time period is equal to a single

OFDM symbol; and the processor is further configured to: select at least one of the first UCI resource grant or the second UCI resource grant based on the one or more grant selection rules when the first time difference is less than the single OFDM symbol and the second time difference is less than the single OFDM symbol such that the first UCI resource grant and the end of the second UCI resource grant are completely aligned in time.

24. The scheduled entity of claim 17, wherein the combined set of resources comprises a physical uplink control channel (PUCCH) resource when the first UCI resource grant comprises a first PUCCH grant and the second UCI resource grant comprises a second PUCCH grant.

25. The scheduled entity of claim 17, wherein the combined set of resources comprises a physical uplink shared channel (PUSCH) grant when at least one of the first UCI resource grant or the second UCI resource grant comprises a PUSCH grant.

26. A scheduled entity in wireless communication with a scheduling entity in a wireless communication network, comprising: a processor; a transceiver communicatively coupled to the processor; and a memory communicatively coupled to the processor, wherein the processor is configured to: receive a first uplink control information (UCI) resource grant allocating a first set of resource elements for use by the scheduled entity to transmit first uplink control information to the scheduling entity via the transceiver; receive a second UCI resource grant allocating a second set of resource elements for use by the scheduled entity to transmit second uplink control information to the scheduling entity via the transceiver; and select at least one of the first UCI resource grant or the second UCI resource grant based on one or more grant selection rules, in response to a time difference between the first set of resource elements and the second set of resource elements being less than a threshold indicating that the first UCI resource grant and the second UCI resource grant occur within a same time period, wherein the threshold corresponds to the time period, and wherein the first UCI resource grant comprises a semi-static UCI resource grant, the first uplink control information comprises periodic uplink control information, the second UCI resource grant comprises a dynamic UCI resource grant, and the second uplink control information comprises aperiodic uplink control information.

27. The scheduled entity of claim 26, wherein the processor is further configured to: select the semi-static UCI resource grant; and multiplex the periodic uplink control information and at least part of the aperiodic uplink control information on the first set of resource elements.

28. The scheduled entity of claim 26, wherein: the dynamic UCI resource grant comprises a dynamic resource trigger identifying the aperiodic uplink control information; and the processor is further configured to multiplex the periodic uplink control information and at least part of the aperiodic uplink control information on the first set of resource elements based on the dynamic resource trigger.

29. The scheduled entity of claim 26, wherein the processor is further configured to: select the dynamic UCI resource grant; and multiplex the periodic uplink control information and the aperiodic uplink control information on the second set of resource elements.

30. The scheduled entity of claim 26, wherein the processor is further configured to: select one of the semi-static UCI resource grant or the dynamic UCI resource grant that occurs earlier in time or comprises a larger set of resources.

31. A scheduled entity in wireless communication with a scheduling entity in a wireless communication network, comprising: a processor; a transceiver communicatively coupled to the processor; and a memory communicatively coupled to the processor, wherein the processor is configured to: receive a first uplink control information (UCI) resource grant allocating a first set of resource elements for use by the scheduled entity to transmit first uplink control information to the scheduling entity via the transceiver; receive a second UCI resource grant allocating a second set of resource elements for use by the scheduled entity to transmit second uplink control information to the scheduling entity via the transceiver; select both the first UCI resource grant and the second UCI resource grant, in response to a time difference between the first set of resource elements and the second set of resource elements being less than a threshold indicating that the first UCI resource grant and the second UCI resource grant occur within a same time period, wherein the threshold corresponds to the time period; transmit the first uplink control information and the second uplink control information on the first set of resource elements; and

transmit the first uplink control information and the second uplink control information on the second set of resource elements.

32. A scheduled entity in wireless communication with a scheduling entity in a wireless communication network, comprising: a processor; a transceiver communicatively coupled to the processor; and a memory communicatively coupled to the processor, wherein the processor is configured to: receive a first uplink control information (UCI) resource grant allocating a first set of resource elements for use by the scheduled entity to transmit first uplink control information to the scheduling entity via the transceiver; receive a second UCI resource grant allocating a second set of resource elements for use by the scheduled entity to transmit second uplink control information to the scheduling entity via the transceiver; and select at least one of the first UCI resource grant or the second UCI resource grant based on one or more grant selection rules, in response to a time difference between the first set of resource elements and the second set of resource elements being less than a threshold indicating that the first UCI resource grant and the second UCI resource grant occur within a same time period, wherein the threshold corresponds to the time period, and wherein, the one or more grant selection rules are based on at least one of a payload type of at least one of the first uplink control information or the second uplink control information, a payload size of at least one of the first uplink control information or the second uplink control information, a waveform type of at least one of the first UCI resource grant or the second UCI resource grant, a transmit-diversity scheme of at least one of the first UCI resource grant or the second UCI resource grant, time resources utilized by at least one of the first set of resource elements or the second set of resource elements, or frequency resources utilized by at least one of the first set of resource elements or the second set of resource elements, or some combination thereof.

33. An apparatus for use at a scheduled entity in a wireless communication network, the apparatus comprising: means for receiving a first uplink control information (UCI) resource grant allocating a first set of resource elements for use by the scheduled entity to transmit first uplink control information to a scheduling entity, and a second UCI resource grant allocating a second set of resource elements for use by the scheduled entity to transmit second uplink control information to the scheduling entity; means for combining the first set of resource elements for

the first UCI resource grant with the second set of resource elements for the second UCI resource grant to produce a combined set of resource elements, in response to a time difference between the first set of resource elements and the second set of resource elements being less than a threshold indicating that the first UCI resource grant and the second UCI resource grant occur within a same time period, wherein the threshold corresponds to the time period; and means for multiplexing the first uplink control information and the second uplink control information on the combined set of resource elements.

34. The apparatus of claim 33, wherein the threshold comprises at least one transmission time interval, each corresponding to a set of one or more orthogonal frequency division multiplexed (OFDM) symbols, a mini-slot, a slot, or a set of two or more slots.

35. The apparatus of claim 34, wherein the at least one transmission time interval comprises a single transmission time interval, two overlapping transmission time intervals, or two non-overlapping transmission time intervals.

36. The apparatus of claim 35, wherein the at least one transmission time interval comprises the two non-overlapping transmission time intervals and the threshold is equal to a maximum time period between a start or an end of a first transmission time interval of the two non-overlapping transmission time intervals and a start or an end of a second transmission time interval of the two non-overlapping transmission time intervals.

37. The apparatus of claim 34, wherein: the time difference is between a start of the first UCI resource grant and a start of the second UCI resource grant; the threshold corresponding to the time period is equal to a single OFDM symbol; and the means for selecting at least one of the first UCI resource grant or the second UCI resource grant based on the one or more grant selection rules further comprises: means for selecting at least one of the first UCI resource grant or the second UCI resource grant based on the one or more grant selection rules when the time difference is less than the single OFDM symbol such that the start of the first UCI resource grant and the start of the second UCI resource grant are aligned in time.

38. The apparatus of claim 34, wherein: the time difference is between an end of the first UCI resource grant and an end of the second UCI resource grant; the threshold corresponding to the time period is equal to a single OFDM symbol; and the means for selecting at least one of the first UCI resource grant or the second UCI resource grant based on the one or more grant selection rules further comprises: means for selecting at least one of the first UCI resource grant or the second UCI resource grant based on the one or more grant selection rules when the time difference is less than the single OFDM symbol such that the end of the first UCI resource grant and the end of the second UCI resource grant are aligned in time.

39. The apparatus of claim 34, wherein: the time difference comprises a first time difference between a start of the first UCI resource grant and a start of the second UCI resource grant and a second time difference between an end of the first UCI resource grant and an end of the second UCI resource grant; the threshold corresponding to the time period is equal to a single OFDM symbol; and the means for selecting at least one of the first UCI resource grant or the second UCI resource grant based on the one or more grant selection rules further comprises: means for selecting at least one of the first UCI resource grant or the second UCI resource grant based on the one or more grant selection rules when the first time difference is less than the single OFDM symbol and the second time difference is less than the single OFDM symbol such that the first UCI resource grant and the end of the second UCI resource grant are completely aligned in time.

40. The apparatus of claim 33, wherein the combined set of resources comprises a physical uplink control channel (PUCCH) resource when the first UCI resource grant comprises a first PUCCH grant and the second UCI resource grant comprises a second PUCCH grant.

41. The apparatus of claim 33, wherein the combined set of resources comprises a physical uplink shared channel (PUSCH) grant when at least one of the first UCI resource grant or the second UCI resource grant comprises a PUSCH grant.

42. A non-transitory computer-readable medium having stored therein instructions executable by a processor of a scheduled entity to: receive a first uplink control information (UCI) resource grant allocating a first set of resource elements for use by the scheduled entity to transmit first

uplink control information to a scheduling entity; receive a second UCI resource grant allocating a second set of resource elements for use by the scheduled entity to transmit second uplink control information to the scheduling entity; and combine the first set of resource elements for the first UCI resource grant with the second set of resource elements for the second UCI resource grant to produce a combined set of resource elements, in response to a time difference between the first set of resource elements and the second set of resource elements being less than a threshold indicating that the first UCI resource grant and the second UCI resource grant occur within a same time period, wherein the threshold corresponds to the time period; and multiplex the first uplink control information and the second uplink control information on the combined set of resource elements.

43. The non-transitory computer-readable medium of claim 42, wherein the threshold comprises at least one transmission time interval, each corresponding to a set of one or more orthogonal frequency division multiplexed (OFDM) symbols, a mini-slot, a slot, or a set of two or more slots.

44. The non-transitory computer-readable medium of claim 43, wherein the at least one transmission time interval comprises a single transmission time interval, two overlapping transmission time intervals, or two non-overlapping transmission time intervals.

45. The non-transitory computer-readable medium of claim 44, wherein the at least one transmission time interval comprises the two non-overlapping transmission time intervals and the threshold is equal to a maximum time period between a start or an end of a first transmission time interval of the two non-overlapping transmission time intervals and a start or an end of a second transmission time interval of the two non-overlapping transmission time intervals.

46. The non-transitory computer-readable medium of claim 43, wherein: the time difference is between a start of the first UCI resource grant and a start of the second UCI resource grant; and the threshold corresponding to the time period is equal to a single OFDM symbol; and the instructions are further executable by the processor to: select at least one of the first UCI resource grant or the second UCI resource grant based on the one or more grant selection rules

when the time difference is less than the single OFDM symbol such that the start of the first UCI resource grant and the start of the second UCI resource grant are aligned in time.

47. The non-transitory computer-readable medium of claim 43, wherein: the time difference is between an end of the first UCI resource grant and an end of the second UCI resource grant; and the threshold corresponding to the time period is equal to a single OFDM symbol; and the instructions are further executable by the processor to: select at least one of the first UCI resource grant or the second UCI resource grant based on the one or more grant selection rules when the time difference is less than the single OFDM symbol such that the end of the first UCI resource grant and the end of the second UCI resource grant are aligned in time.

48. The non-transitory computer-readable medium of claim 43, wherein: the time difference comprises a first time difference between a start of the first UCI resource grant and a start of the second UCI resource grant and a second time difference between an end of the first UCI resource grant and an end of the second UCI resource grant; and the threshold corresponding to the time period is equal to a single OFDM symbol; and the instructions are further executable by the processor to: select at least one of the first UCI resource grant or the second UCI resource grant based on the one or more grant selection rules when the first time difference is less than the single OFDM symbol and the second time difference is less than the single OFDM symbol such that the first UCI resource grant and the end of the second UCI resource grant are completely aligned in time.

49. The non-transitory computer-readable medium of claim 42, wherein the combined set of resources comprises a physical uplink control channel (PUCCH) resource when the first UCI resource grant comprises a first PUCCH grant and the second UCI resource grant comprises a second PUCCH grant.

50. The non-transitory computer-readable medium of claim 42, wherein the combined set of resources comprises a physical uplink shared channel (PUSCH) grant when at least one of the first UCI resource grant or the second UCI resource grant comprises a PUSCH grant.